



**ASSOCIAÇÃO BRASILEIRA DOS
FABRICANTES DE TUBOS DE CONCRETO**

**RELATÓRIO DE DIMENSIONAMENTO DE
ASSOCIAÇÃO DE TRÊS ADUELAS
RETANGULARES MONOLÍTICAS DE CONCRETO**

sexta-feira, 4 de outubro de 2019



DADOS DO FABRICANTE



NOME:
CPF/CNPJ:
ENDEREÇO: ,
BAIRRO:
CIDADE:
ESTADO: Não Informado
CEP:
TEL.:
CEL.:
E-MAIL:
SITE:

DADOS DO CLIENTE



NOME: DEFESA CIVIL DO ESTADO DE SÃO PAULO
CPF/CNPJ:
ENDEREÇO: ,
BAIRRO:
CIDADE:
ESTADO: Não Informado
CEP:
TEL.:
CEL.:
E-MAIL:
SITE:

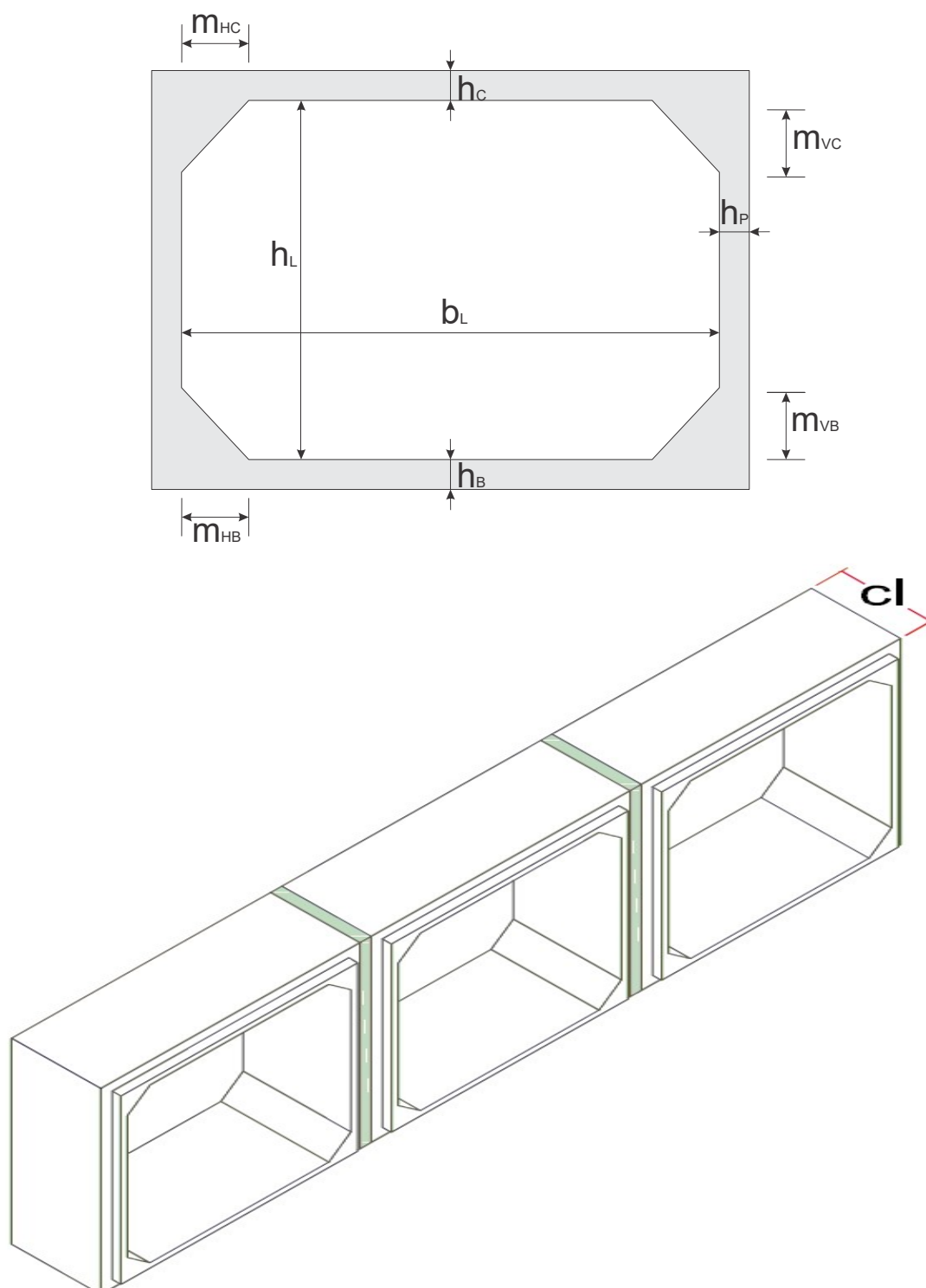
DADOS DA OBRA



NOME: ADUELA 1,50 X 1,50 M PARA ATERRO DE 1,00 M - LINHA TRIPLA
ENDEREÇO: ,
BAIRRO:
CIDADE:
ESTADO: Não Informado
CEP:
TEL.:
CEL.:
E-MAIL:
SITE:

GEOMETRIA

SEÇÃO CONSTANTE.....	: SIM
FINALIDADE.....	: ÁGUAS PLUVIAIS
COMPRIMENTO (c_l).....	: 1.00 m
LARGURA LIVRE (b_l).....	: 1.50 m
ALTURA LIVRE (h_l).....	: 1.50 m
ALTURA DA LAJE DA COBERTURA (h_c).....	: 0.15 m
ESPESSURA DAS PAREDES LATERAIS (h_p).....	: 0.15 m
ALTURA DA LAJE DA BASE (h_b).....	: 0.15 m
MÍSULA HOR. DA COBERTURA.....	: 0.20 m
MÍSULA VERT. DA COBERTURA.....	: 0.20 m
MÍSULA VERT. DA BASE.....	: 0.20 m
MÍSULA HOR. DA BASE.....	: 0.20 m



INSTALAÇÃO E MANUSEIO

ESPECIFICAÇÃO DO SOLO

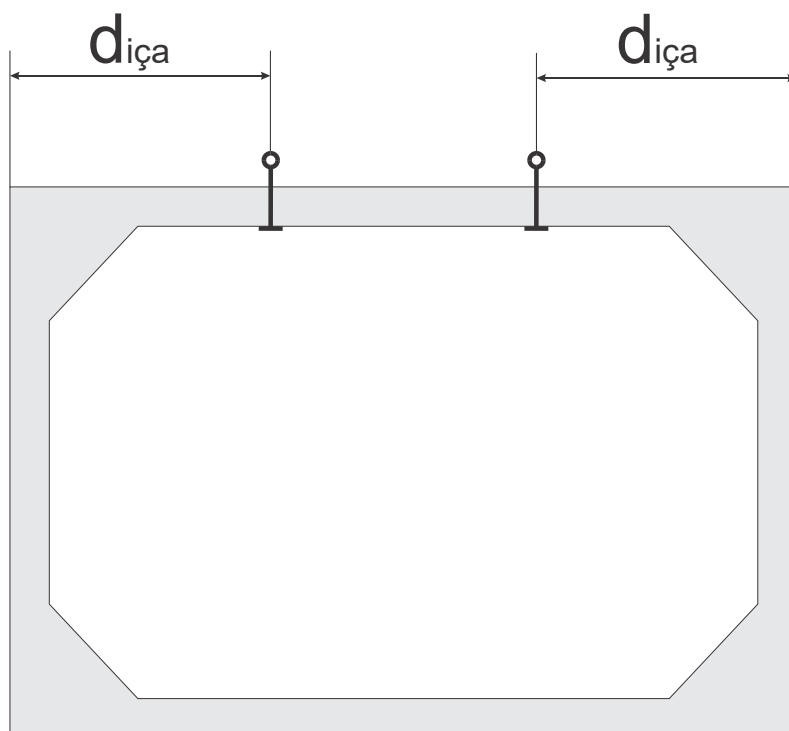
PESO ESPECÍFICO.....	: 18.00 kN/m ³
ÂNGULO DE ATRITO.....	: 30.00 graus
COEFICIENTE DE ATRITO ATIVO.....	: 0.33
COEFICIENTE DE ATRITO ESTÁTICO.....	: 0.50
COEFICIENTE DE ATRITO.....	: 0.58

DADOS DE INSTALAÇÃO

ALTURA DE TERRA.....	: 0.70 m
ESPESSURA DO PAVIMENTO.....	: 0.30 m
EFEITO DO ARQUEAMENTO.....	: NÃO CONSIDERADO
TIPO DE INSTALAÇÃO.....	: ---
LARGURA DA VALA.....	: ---
0.80 x K_a x COEFICIENTE DE ATRITO.....	: 0.15
RAZÃO DE RECALQUE.....	: ---

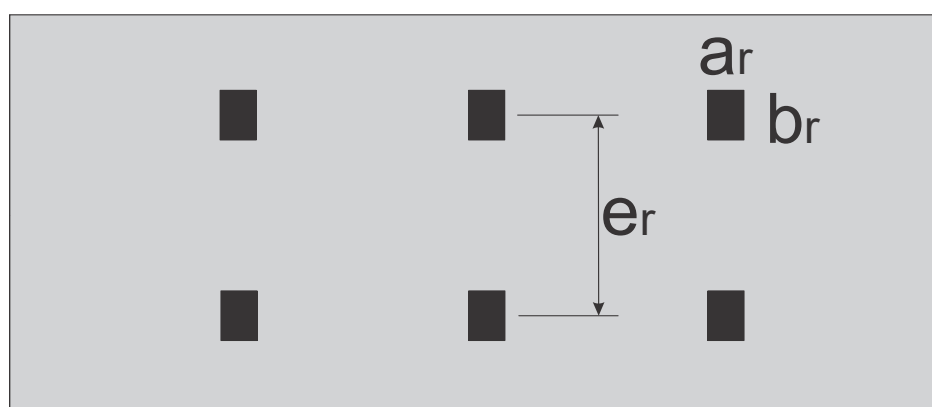
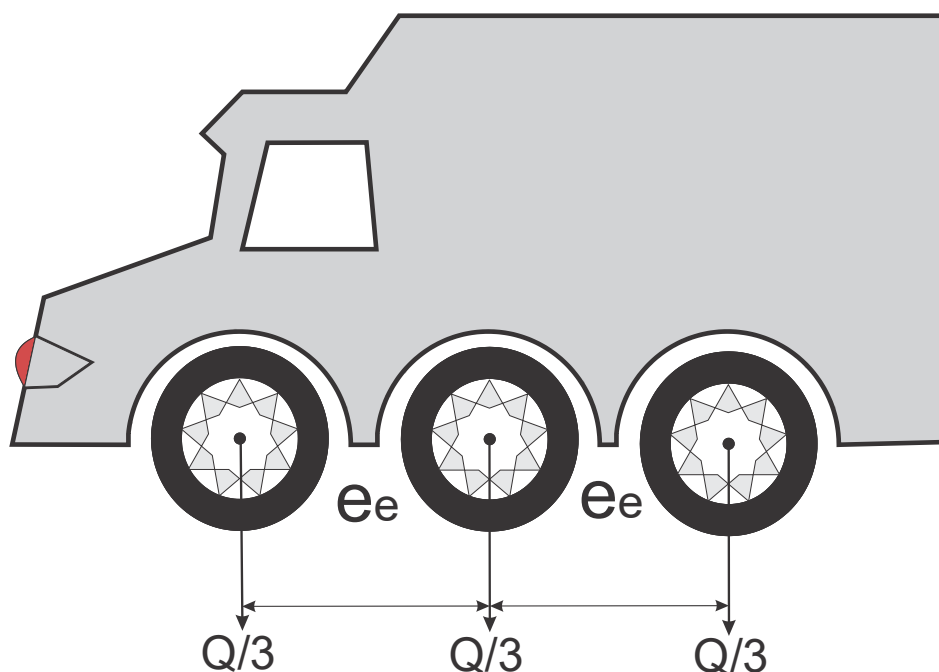
INFORMAÇÕES DE MANUSEIO

RESISTÊNCIA DO CONCRETO (f_{cj}).....	: 20.00 MPa
COEFICIENTE DE IMPACTO.....	: 1.20
DISTÂNCIA DE IÇAMENTO.....	: 50.00 cm



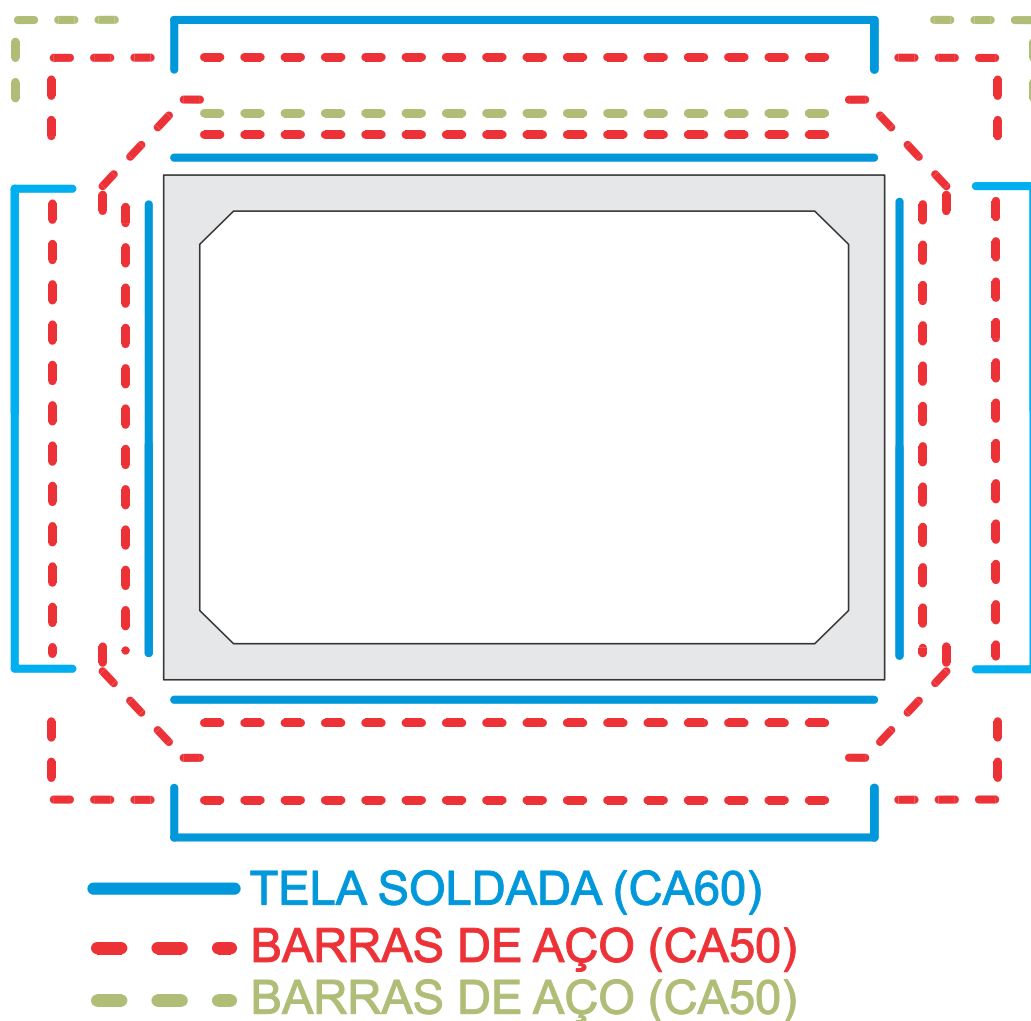
SOBRECARGA

TIPO DE SOBRECARGA.....: RODOVIÁRIO
TIPO DE TRÁFEGO.....: CLASSE 45
PESO DO VEÍCULO (Q).....: 450.00 kN
DISTÂNCIA ENTRE EIXOS (e_e).....: 1.50 m
DISTÂNCIA ENTRE RODAS (e_r).....: 2.00 m
ÁREA DE CONTATO DA RODA (a_r).....: 0.20 m
ÁREA DE CONTATO DA RODA (b_r).....: 0.50 m
COEF. DE IMPACTO ADICIONAL.....: 1.25
COEF. DE IMPACTO EMPREGADO.....: 1.30



PARÂMETROS DA ARMADURA

ABERTURA MÁX. DAS FISSURAS.....	: 0.20 mm
DIMINUIÇÃO DA RIGIDEZ.....	: 1.00
RESISTÊNCIA DA ARMADURA DO COROAMENTO.....	: 190.00 MPa
RESISTÊNCIA DA ARMADURA DA QUINA.....	: 105.00 MPa
COEF. DE PONDERAÇÃO DO CONCRETO.....	: 1.30
COEF. DE PONDERAÇÃO DO AÇO.....	: 1.15
ESPAÇAMENTO MÍN. ENTRE ARMADURAS.....	: 5.00 cm
ESPAÇAMENTO MÁX. ENTRE ARMADURAS.....	: 35.00 cm
COBRIMENTO DAS ARMADURAS.....	: 4.00 cm
TELA PADRÃO INTERNA.....	: L283
TELA PADRÃO EXTERNA.....	: L283
CONSIDERAR ANCOR. DA ARM. INT. P/ CORTANTE..	: SIM



CRITÉRIOS E CONSTANTES

RESISTÊNCIA CARACTERÍSTICA DO CONCRETO...	30.00 MPa
PESO ESPECÍFICO DO CONCRETO.....	25.00 kN/m ³
PESO ESPECÍFICO DO AÇO.....	78.00 kN/m ³
MÓDULO DE DEFORMAÇÃO LONGITUDINAL.....	26071.59 MPa
MÓDULO DE REAÇÃO DO SOLO.....	25.00 MPa/m
COMPRIMENTO DO ELEMENTO FINITO.....	20.00 cm

ELS:

COEFICIENTE DE PONDERAÇÃO PESO PRÓPRIO...	1.00
COEFICIENTE DE PONDERAÇÃO SOLO.....	1.00
COEFICIENTE DE PONDERAÇÃO FISSURAÇÃO.....	0.50
COEFICIENTE DE PONDERAÇÃO FADIGA.....	0.80

ELU:

- VmaxHmin:

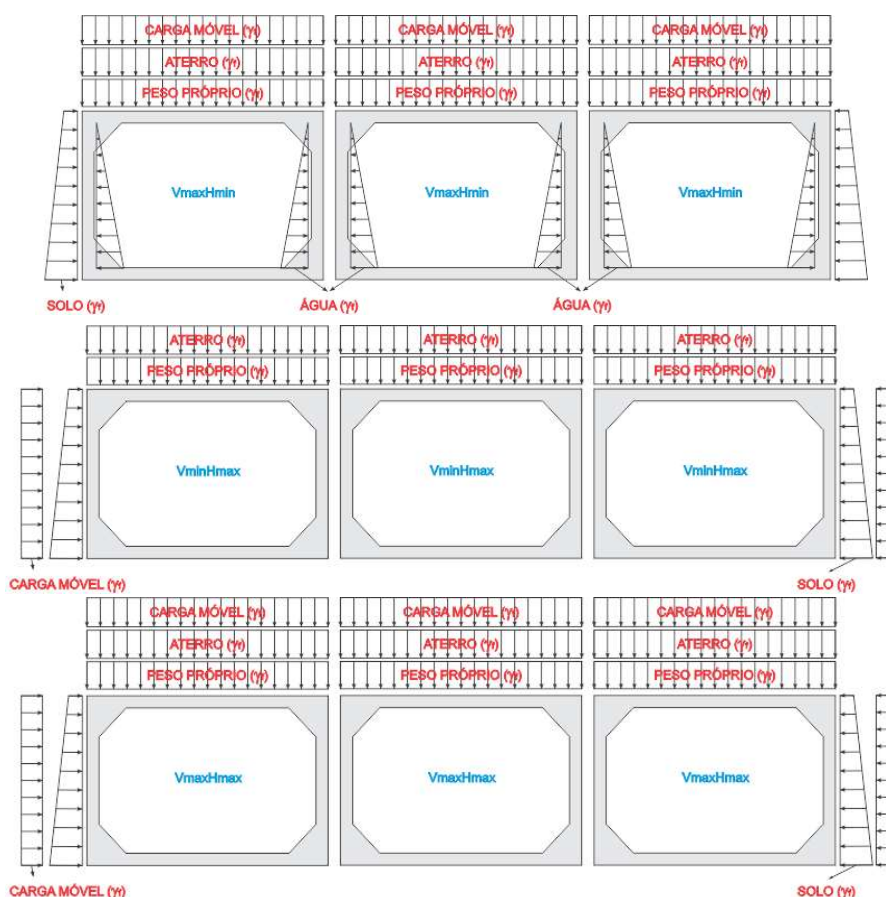
COEFICIENTE DE PONDERAÇÃO CARGA MÓVEL V.:	1.50
COEFICIENTE DE PONDERAÇÃO ATERRO.....	1.35
COEFICIENTE DE PONDERAÇÃO PESO PRÓPRIO...	1.30
COEFICIENTE DE PONDERAÇÃO SOLO.....	1.00
COEFICIENTE DE PONDERAÇÃO ÁGUA.....	1.20

- VminHmax:

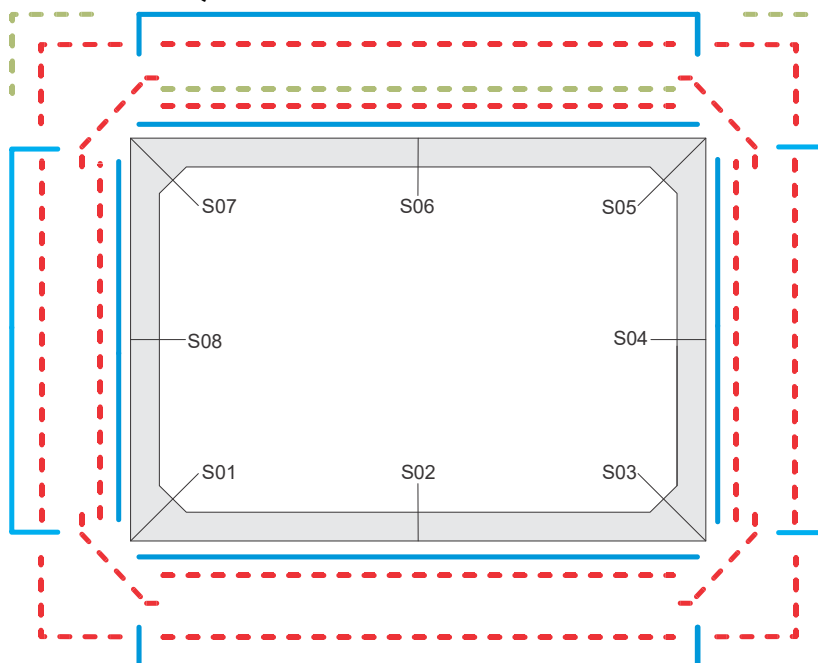
COEFICIENTE DE PONDERAÇÃO ATERRO.....	1.00
COEFICIENTE DE PONDERAÇÃO PESO PRÓPRIO...	1.00
COEFICIENTE DE PONDERAÇÃO SOLO.....	1.35
COEFICIENTE DE PONDERAÇÃO CARGA MÓVEL H.:	1.50

- VmaxHmax:

COEFICIENTE DE PONDERAÇÃO CARGA MÓVEL V.:	1.50
COEFICIENTE DE PONDERAÇÃO ATERRO.....	1.35
COEFICIENTE DE PONDERAÇÃO PESO PRÓPRIO...	1.30
COEFICIENTE DE PONDERAÇÃO SOLO.....	1.35
COEFICIENTE DE PONDERAÇÃO CARGA MÓVEL H.:	1.50



ESQUEMA P/ DETALHAMENTO



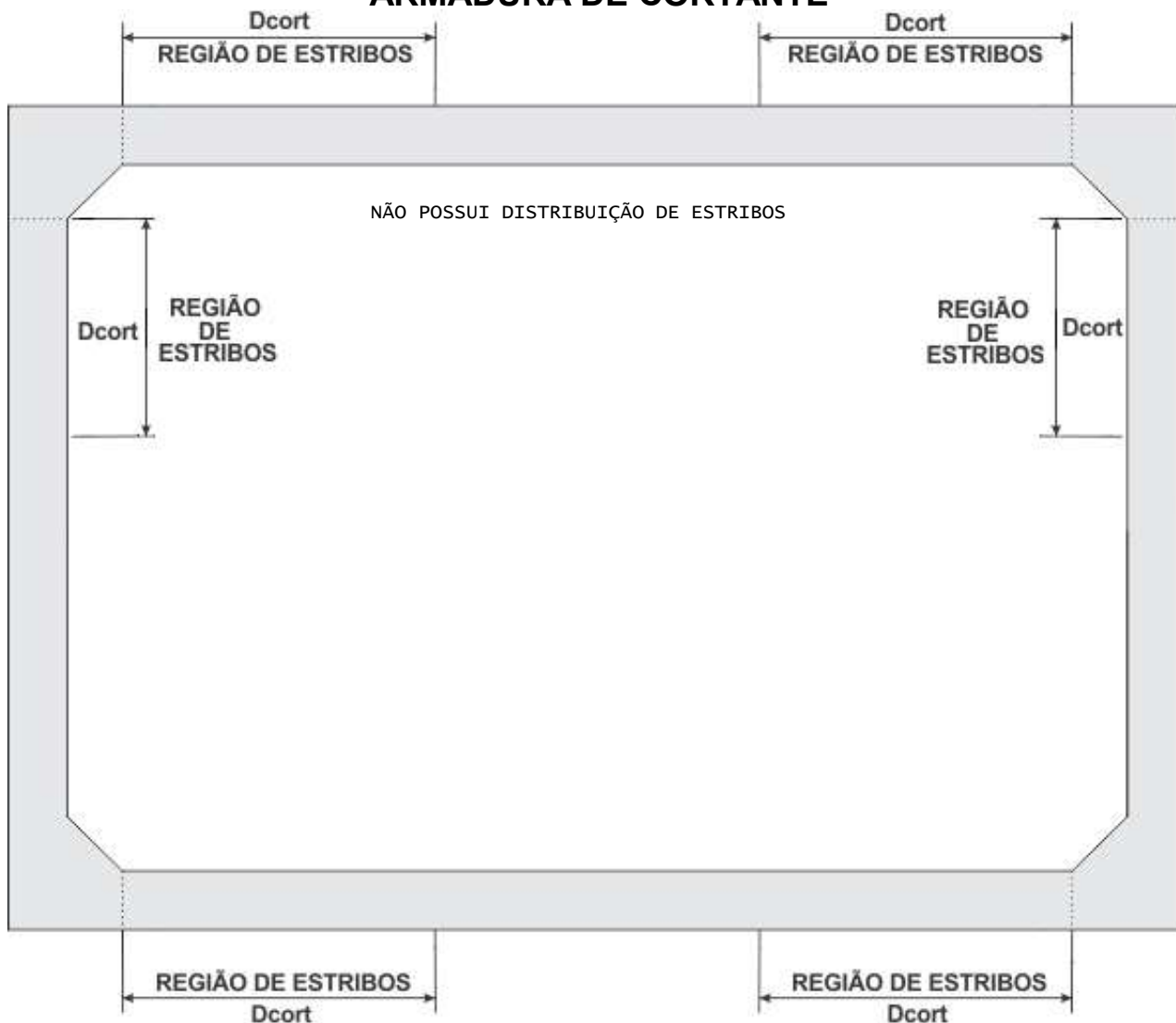
- TELA SOLDADA (CA60) ARMADURA BÁSICA
 - - - BARRAS DE AÇO (CA50) ARMADURA COMPLEMENTAR
 - - - BARRAS DE AÇO (CA50) ARMADURA DE FADIGA

OBS.: VALORES POR METRO DE ADUELA.

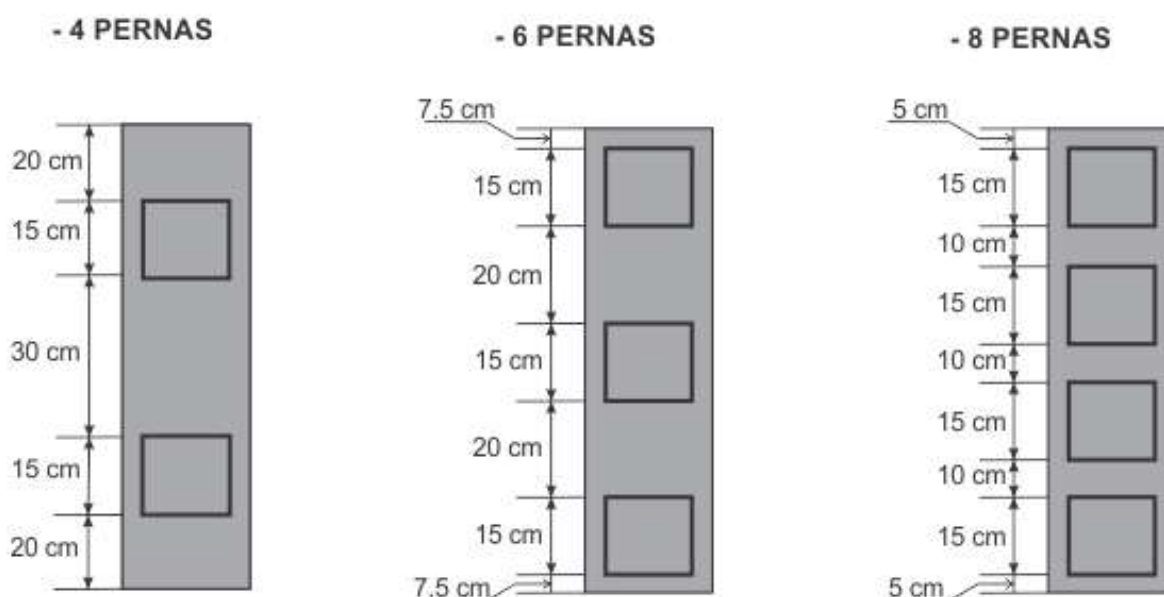
	TELA	ARMADURA COMPLEMENTAR	ARMADURA DE FADIGA
LADO EXTERNO	T-S02: L283	B-S01: 0.22 cm ² de área acima	B-S05: 0.00 cm ² de área acima
	T-S04: L283	B-S02: 0.61 cm ² de área acima	B-S07: 0.00 cm ² de área acima
	T-S06: L283	B-S03: 0.22 cm ² de área acima	
	T-S08: L283	B-S04: 0.61 cm ² de área acima B-S05: 0.22 cm ² de área acima B-S06: 0.61 cm ² de área acima B-S07: 0.22 cm ² de área acima B-S08: 0.61 cm ² de área acima	
LADO INTERNO	T-S02: L283	B-S01: 4 Ø6.30 c/ 31 cm (0.00%)	B-S06: 0.00 cm ² de área acima
	T-S04: L283	B-S02: 0.61 cm ² de área acima	
	T-S06: L283	B-S03: 4 Ø6.30 c/ 31 cm (0.00%)	
	T-S08: L283	B-S04: 0.61 cm ² de área acima B-S05: 4 Ø6.30 c/ 31 cm (0.00%) B-S06: 0.61 cm ² de área acima B-S07: 4 Ø6.30 c/ 31 cm (0.00%) B-S08: 0.61 cm ² de área acima	

NOTA: Os valores entre parênteses representam a percentagem de área de aço que a seção apresenta acima (percentagem positiva) ou a menos (percentagem negativa) em relação ao necessário (calculado) para o tipo de armadura correspondente (armadura complementar ou armadura de fadiga) e não em relação a área total de aço na seção que é o resultado das áreas de tela, armadura complementar e armadura de fadiga. Assim sendo, se uma seção apresenta (X %) de área acima ou abaixo para armadura complementar, esta percentagem é calculada em função da área de armadura complementar necessária e não em relação a área total de aço.

ARMADURA DE CORTANTE



DISTRIBUIÇÃO (POR METRO LONGITUDINAL) DOS ESTRIBOS AO LONGO DE UMA FIADA:

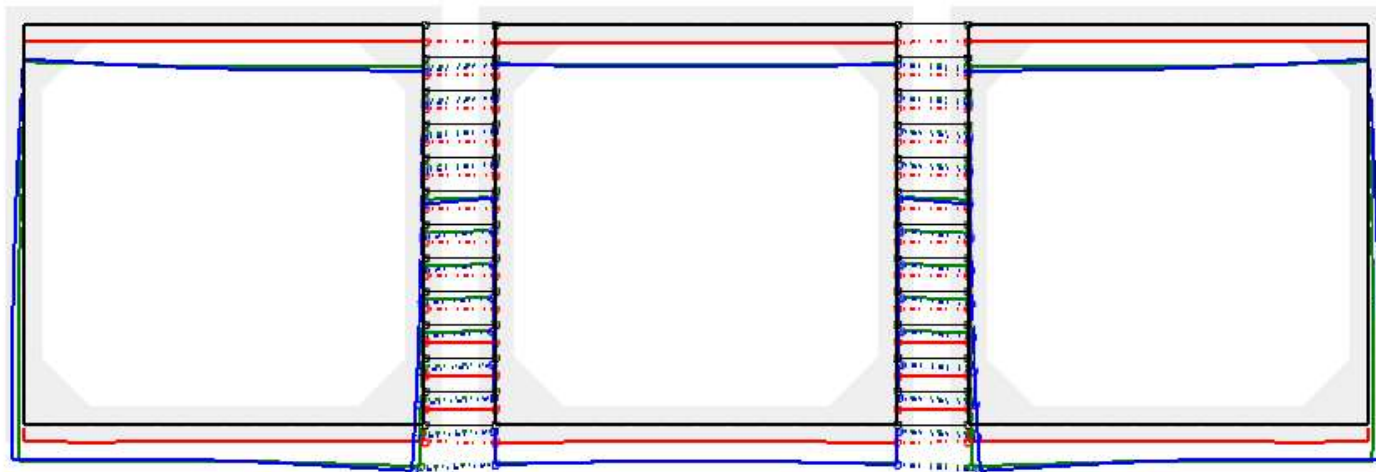
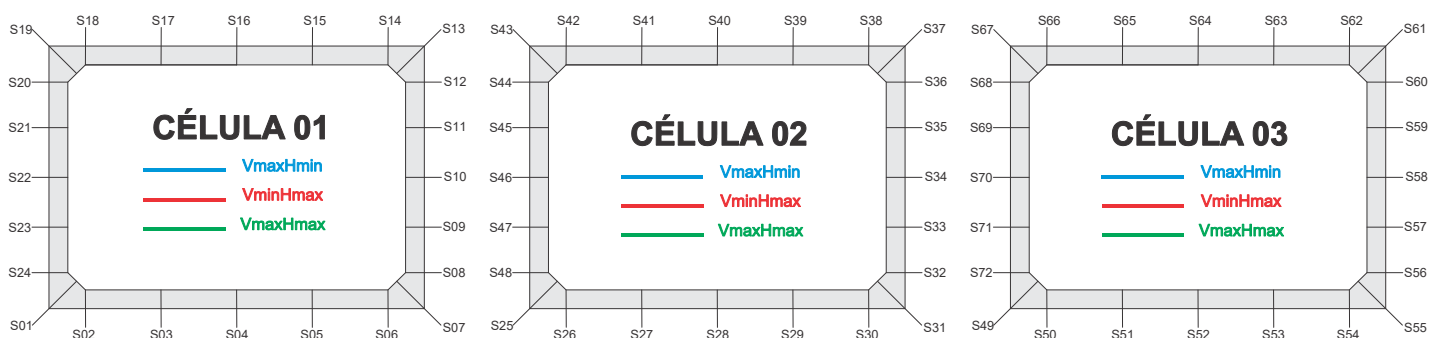


OBSERVAÇÃO:

Quando houver necessidade de armadura transversal, esta deve necessariamente ser colocada na laje de cobertura e na laje de fundo nas regiões apontadas na figura esquemática acima (REGIÃO DE ESTRIBOS). É RECOMENDADO ainda a colocação de armadura transversal nas partes superiores das paredes, repedindo o arranjo da armadura transversal das lajes de cobertura, a partir das quinas, em função de possíveis concentrações de pressões mútuas entre as células.

DESLOCAMENTOS

NOMENCLATURA DAS SEÇÕES PARA VERSÃO COMPLETA DO RELATÓRIO



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#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VmaxHmin                             #
#####
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-9.44E-004	-2.88E-003
2	-9.44E-004	-2.86E-003
3	-9.45E-004	-2.87E-003
4	-9.45E-004	-2.97E-003
5	-9.45E-004	-3.20E-003
6	-9.45E-004	-3.51E-003
7	-9.45E-004	-3.85E-003
8	-6.24E-004	-3.85E-003
9	-3.74E-004	-3.85E-003
10	-2.22E-004	-3.86E-003
11	-1.32E-004	-3.86E-003
12	-6.30E-005	-3.87E-003
13	-7.41E-006	-3.87E-003
14	-7.36E-006	-3.82E-003
15	-7.27E-006	-3.78E-003
16	-7.17E-006	-3.69E-003
17	-7.07E-006	-3.49E-003
18	-6.98E-006	-3.21E-003
19	-6.93E-006	-2.90E-003
20	-3.16E-004	-2.89E-003
21	-5.86E-004	-2.89E-003
22	-7.86E-004	-2.89E-003
23	-9.12E-004	-2.88E-003
24	-9.55E-004	-2.88E-003
25	7.88E-007	-3.33E-003
26	6.27E-007	-3.18E-003
27	3.13E-007	-3.04E-003
28	1.47E-010	-2.99E-003
29	-3.13E-007	-3.04E-003
30	-6.26E-007	-3.18E-003
31	-7.88E-007	-3.33E-003
32	1.37E-004	-3.33E-003
33	2.08E-004	-3.33E-003
34	1.94E-004	-3.34E-003
35	1.33E-004	-3.34E-003
36	6.75E-005	-3.35E-003
37	-8.73E-008	-3.35E-003
38	-6.94E-008	-3.43E-003
39	-3.47E-008	-3.50E-003
40	1.41E-010	-3.54E-003
41	3.49E-008	-3.50E-003
42	6.97E-008	-3.43E-003
43	8.76E-008	-3.35E-003
44	-6.75E-005	-3.35E-003
45	-1.33E-004	-3.34E-003
46	-1.94E-004	-3.34E-003
47	-2.08E-004	-3.33E-003
48	-1.37E-004	-3.33E-003
49	9.45E-004	-3.85E-003

50	9.45E-004	-3.51E-003
51	9.45E-004	-3.20E-003
52	9.45E-004	-2.97E-003
53	9.45E-004	-2.87E-003
54	9.44E-004	-2.86E-003
55	9.44E-004	-2.88E-003
56	9.55E-004	-2.88E-003
57	9.12E-004	-2.88E-003
58	7.86E-004	-2.89E-003
59	5.86E-004	-2.89E-003
60	3.16E-004	-2.89E-003
61	6.93E-006	-2.90E-003
62	6.98E-006	-3.21E-003
63	7.07E-006	-3.49E-003
64	7.17E-006	-3.69E-003
65	7.27E-006	-3.78E-003
66	7.36E-006	-3.82E-003
67	7.41E-006	-3.87E-003
68	6.30E-005	-3.87E-003
69	1.32E-004	-3.86E-003
70	2.22E-004	-3.86E-003
71	3.74E-004	-3.85E-003
72	6.24E-004	-3.85E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	5.91E-005
2	7.03E-005
3	-1.73E-004
4	-6.00E-004
5	-1.02E-003
6	-1.22E-003
7	-1.20E-003
8	-1.13E-003
9	-7.10E-004
10	-4.15E-004
11	-2.72E-004
12	-2.23E-004
13	-1.81E-004
14	-1.39E-004
15	-2.11E-004
16	-5.18E-004
17	-8.85E-004
18	-1.14E-003
19	-1.14E-003
20	-1.10E-003
21	-8.58E-004
22	-5.98E-004
23	-3.12E-004
24	7.30E-006
25	5.26E-004
26	5.52E-004
27	3.76E-004
28	7.69E-012
29	-3.76E-004

30	-5.52E-004
31	-5.26E-004
32	-4.59E-004
33	-8.23E-005
34	1.64E-004
35	2.50E-004
36	2.32E-004
37	2.63E-004
38	2.98E-004
39	2.37E-004
40	1.13E-011
41	-2.37E-004
42	-2.98E-004
43	-2.63E-004
44	-2.32E-004
45	-2.50E-004
46	-1.64E-004
47	8.23E-005
48	4.59E-004
49	1.20E-003
50	1.22E-003
51	1.02E-003
52	6.00E-004
53	1.73E-004
54	-7.03E-005
55	-5.91E-005
56	-7.30E-006
57	3.12E-004
58	5.98E-004
59	8.58E-004
60	1.10E-003
61	1.14E-003
62	1.14E-003
63	8.85E-004
64	5.18E-004
65	2.11E-004
66	1.39E-004
67	1.81E-004
68	2.23E-004
69	2.72E-004
70	4.15E-004
71	7.10E-004
72	1.13E-003

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#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VminHmax                             #
#####
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	1.78E-005	-1.44E-003
2	1.66E-005	-1.45E-003
3	1.42E-005	-1.44E-003
4	1.17E-005	-1.43E-003
5	9.33E-006	-1.43E-003
6	6.90E-006	-1.44E-003
7	5.66E-006	-1.44E-003
8	3.33E-007	-1.44E-003
9	-5.96E-006	-1.44E-003
10	-8.23E-006	-1.44E-003
11	-6.35E-006	-1.45E-003
12	-6.86E-007	-1.45E-003
13	4.95E-006	-1.45E-003
14	5.93E-006	-1.45E-003
15	7.83E-006	-1.45E-003
16	9.73E-006	-1.45E-003
17	1.16E-005	-1.44E-003
18	1.35E-005	-1.44E-003
19	1.45E-005	-1.45E-003
20	3.59E-005	-1.45E-003
21	6.47E-005	-1.45E-003
22	7.85E-005	-1.45E-003
23	6.37E-005	-1.45E-003
24	3.54E-005	-1.45E-003
25	6.09E-006	-1.47E-003
26	4.84E-006	-1.45E-003
27	2.42E-006	-1.43E-003
28	2.28E-011	-1.42E-003
29	-2.42E-006	-1.43E-003
30	-4.84E-006	-1.45E-003
31	-6.09E-006	-1.47E-003
32	1.88E-006	-1.47E-003
33	5.37E-006	-1.47E-003
34	6.82E-006	-1.47E-003
35	5.91E-006	-1.47E-003
36	2.30E-006	-1.47E-003
37	-4.79E-006	-1.47E-003
38	-3.81E-006	-1.48E-003
39	-1.91E-006	-1.50E-003
40	-1.33E-009	-1.51E-003
41	1.90E-006	-1.50E-003
42	3.81E-006	-1.48E-003
43	4.79E-006	-1.47E-003
44	-2.30E-006	-1.47E-003
45	-5.62E-006	-1.47E-003
46	-6.48E-006	-1.47E-003
47	-5.26E-006	-1.47E-003
48	-1.88E-006	-1.47E-003
49	-5.64E-006	-1.44E-003

50	-6.89E-006	-1.44E-003
51	-9.31E-006	-1.43E-003
52	-1.17E-005	-1.43E-003
53	-1.42E-005	-1.44E-003
54	-1.66E-005	-1.45E-003
55	-1.78E-005	-1.44E-003
56	-3.54E-005	-1.45E-003
57	-6.37E-005	-1.45E-003
58	-7.85E-005	-1.45E-003
59	-6.47E-005	-1.45E-003
60	-3.58E-005	-1.45E-003
61	-1.45E-005	-1.45E-003
62	-1.35E-005	-1.44E-003
63	-1.16E-005	-1.44E-003
64	-9.72E-006	-1.45E-003
65	-7.82E-006	-1.45E-003
66	-5.91E-006	-1.45E-003
67	-4.93E-006	-1.45E-003
68	6.90E-007	-1.45E-003
69	6.08E-006	-1.45E-003
70	7.89E-006	-1.44E-003
71	5.85E-006	-1.44E-003
72	-3.22E-007	-1.44E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	-4.90E-005
2	-1.29E-005
3	6.01E-005
4	2.38E-005
5	-3.06E-005
6	-1.23E-005
7	1.10E-005
8	2.56E-005
9	1.60E-005
10	6.20E-007
11	-1.41E-005
12	-2.44E-005
13	-1.47E-005
14	1.64E-006
15	1.50E-005
16	-1.93E-005
17	-3.47E-005
18	3.58E-005
19	6.56E-005
20	9.06E-005
21	9.43E-005
22	-2.02E-006
23	-9.69E-005
24	-8.03E-005
25	3.86E-005
26	6.34E-005
27	7.69E-005
28	2.73E-010
29	-7.69E-005

30	-6.34E-005
31	-3.86E-005
32	-2.08E-005
33	-8.80E-006
34	-1.36E-006
35	8.37E-006
36	1.99E-005
37	3.28E-005
38	5.09E-005
39	5.88E-005
40	6.13E-010
41	-5.88E-005
42	-5.09E-005
43	-3.28E-005
44	-1.97E-005
45	-7.15E-006
46	7.99E-007
47	7.96E-006
48	2.07E-005
49	-1.10E-005
50	1.23E-005
51	3.06E-005
52	-2.38E-005
53	-6.01E-005
54	1.29E-005
55	4.90E-005
56	8.03E-005
57	9.69E-005
58	2.02E-006
59	-9.43E-005
60	-9.06E-005
61	-6.56E-005
62	-3.58E-005
63	3.47E-005
64	1.93E-005
65	-1.50E-005
66	-1.64E-006
67	1.47E-005
68	2.43E-005
69	1.29E-005
70	-6.21E-008
71	-1.51E-005
72	-2.56E-005

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#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VmaxHmax                            #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-3.27E-004	-3.09E-003
2	-3.28E-004	-3.04E-003
3	-3.30E-004	-2.99E-003
4	-3.32E-004	-3.02E-003
5	-3.33E-004	-3.13E-003
6	-3.35E-004	-3.30E-003
7	-3.36E-004	-3.47E-003
8	-1.83E-004	-3.47E-003
9	-8.78E-005	-3.48E-003
10	-4.69E-005	-3.48E-003
11	-2.99E-005	-3.49E-003
12	-1.51E-005	-3.49E-003
13	-6.83E-006	-3.49E-003
14	-6.20E-006	-3.50E-003
15	-4.98E-006	-3.52E-003
16	-3.75E-006	-3.50E-003
17	-2.52E-006	-3.41E-003
18	-1.30E-006	-3.27E-003
19	-6.65E-007	-3.11E-003
20	-1.49E-004	-3.11E-003
21	-2.64E-004	-3.10E-003
22	-3.38E-004	-3.10E-003
23	-3.78E-004	-3.10E-003
24	-3.73E-004	-3.09E-003
25	4.18E-006	-3.25E-003
26	3.32E-006	-3.16E-003
27	1.66E-006	-3.07E-003
28	8.20E-011	-3.04E-003
29	-1.66E-006	-3.07E-003
30	-3.32E-006	-3.16E-003
31	-4.18E-006	-3.25E-003
32	6.59E-005	-3.25E-003
33	8.46E-005	-3.25E-003
34	6.09E-005	-3.26E-003
35	3.00E-005	-3.26E-003
36	1.30E-005	-3.26E-003
37	-6.52E-006	-3.27E-003
38	-5.89E-006	-3.30E-003
39	-4.66E-006	-3.34E-003
40	-3.44E-006	-3.37E-003
41	-2.22E-006	-3.35E-003
42	-9.97E-007	-3.30E-003
43	-3.68E-007	-3.27E-003
44	-1.93E-005	-3.27E-003
45	-3.94E-005	-3.26E-003
46	-7.02E-005	-3.26E-003
47	-9.00E-005	-3.26E-003
48	-6.81E-005	-3.25E-003
49	3.25E-004	-3.47E-003

50	3.24E-004	-3.30E-003
51	3.23E-004	-3.13E-003
52	3.21E-004	-3.02E-003
53	3.19E-004	-2.99E-003
54	3.18E-004	-3.04E-003
55	3.17E-004	-3.09E-003
56	3.62E-004	-3.09E-003
57	3.67E-004	-3.10E-003
58	3.28E-004	-3.10E-003
59	2.55E-004	-3.10E-003
60	1.41E-004	-3.11E-003
61	-6.36E-006	-3.11E-003
62	-5.73E-006	-3.27E-003
63	-4.50E-006	-3.41E-003
64	-3.28E-006	-3.50E-003
65	-2.05E-006	-3.51E-003
66	-8.24E-007	-3.49E-003
67	-1.93E-007	-3.49E-003
68	8.76E-006	-3.49E-003
69	2.78E-005	-3.48E-003
70	4.55E-005	-3.48E-003
71	8.27E-005	-3.47E-003
72	1.75E-004	-3.47E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.86E-004
2	2.11E-004
3	6.43E-005
4	-2.59E-004
5	-5.59E-004
6	-6.32E-004
7	-5.87E-004
8	-5.12E-004
9	-2.20E-004
10	-9.12E-005
11	-4.70E-005
12	-4.93E-005
13	-8.34E-006
14	4.15E-005
15	4.05E-005
16	-1.80E-004
17	-4.45E-004
18	-5.78E-004
19	-5.59E-004
20	-5.16E-004
21	-3.32E-004
22	-2.08E-004
23	-7.69E-005
24	1.35E-004
25	2.92E-004
26	3.33E-004
27	2.68E-004
28	1.17E-006
29	-2.65E-004

30	-3.27E-004
31	-2.84E-004
32	-2.15E-004
33	3.84E-005
34	1.17E-004
35	8.98E-005
36	5.45E-005
37	9.05E-005
38	1.38E-004
39	1.59E-004
40	3.54E-006
41	-1.53E-004
42	-1.35E-004
43	-8.79E-005
44	-5.39E-005
45	-1.04E-004
46	-1.06E-004
47	-2.36E-005
48	2.23E-004
49	5.79E-004
50	6.25E-004
51	5.55E-004
52	2.58E-004
53	-6.41E-005
54	-2.11E-004
55	-1.85E-004
56	-1.34E-004
57	7.61E-005
58	2.06E-004
59	3.29E-004
60	5.12E-004
61	5.54E-004
62	5.73E-004
63	4.40E-004
64	1.77E-004
65	-4.20E-005
66	-4.01E-005
67	1.04E-005
68	5.33E-005
69	6.40E-005
70	8.24E-005
71	2.06E-004
72	5.04E-004

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#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmin                                #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-9.27E-004	-2.90E-003
2	-9.27E-004	-2.86E-003
3	-9.27E-004	-2.85E-003
4	-9.27E-004	-2.95E-003
5	-9.27E-004	-3.18E-003
6	-9.27E-004	-3.53E-003
7	-9.28E-004	-3.91E-003
8	-5.63E-004	-3.91E-003
9	-3.08E-004	-3.92E-003
10	-1.94E-004	-3.93E-003
11	-1.50E-004	-3.94E-003
12	-9.76E-005	-3.95E-003
13	-3.72E-005	-3.95E-003
14	-3.71E-005	-3.90E-003
15	-3.70E-005	-3.86E-003
16	-3.68E-005	-3.74E-003
17	-3.67E-005	-3.53E-003
18	-3.65E-005	-3.24E-003
19	-3.64E-005	-2.91E-003
20	-3.53E-004	-2.91E-003
21	-6.25E-004	-2.91E-003
22	-8.19E-004	-2.91E-003
23	-9.31E-004	-2.90E-003
24	-9.56E-004	-2.90E-003
25	6.80E-007	-3.34E-003
26	5.41E-007	-3.18E-003
27	2.71E-007	-3.03E-003
28	-5.83E-011	-2.97E-003
29	-2.71E-007	-3.03E-003
30	-5.41E-007	-3.19E-003
31	-6.80E-007	-3.38E-003
32	1.73E-004	-3.39E-003
33	2.46E-004	-3.39E-003
34	1.96E-004	-3.40E-003
35	1.00E-004	-3.41E-003
36	3.08E-005	-3.42E-003
37	-2.97E-005	-3.42E-003
38	-2.96E-005	-3.49E-003
39	-2.95E-005	-3.56E-003
40	-2.95E-005	-3.58E-003
41	-2.94E-005	-3.53E-003
42	-2.93E-005	-3.44E-003
43	-2.93E-005	-3.36E-003
44	-1.01E-004	-3.36E-003
45	-1.70E-004	-3.36E-003
46	-2.29E-004	-3.35E-003
47	-2.36E-004	-3.35E-003
48	-1.51E-004	-3.34E-003
49	9.94E-004	-3.90E-003

50	9.94E-004	-3.54E-003
51	9.94E-004	-3.20E-003
52	9.94E-004	-2.95E-003
53	9.93E-004	-2.84E-003
54	9.93E-004	-2.84E-003
55	9.93E-004	-2.89E-003
56	1.03E-003	-2.89E-003
57	9.91E-004	-2.90E-003
58	8.51E-004	-2.90E-003
59	6.24E-004	-2.91E-003
60	3.22E-004	-2.92E-003
61	-2.26E-005	-2.92E-003
62	-2.26E-005	-3.27E-003
63	-2.25E-005	-3.57E-003
64	-2.24E-005	-3.77E-003
65	-2.23E-005	-3.86E-003
66	-2.22E-005	-3.89E-003
67	-2.21E-005	-3.93E-003
68	2.67E-005	-3.92E-003
69	9.79E-005	-3.92E-003
70	2.01E-004	-3.92E-003
71	3.70E-004	-3.91E-003
72	6.45E-004	-3.91E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.29E-004
2	1.38E-004
3	-1.32E-004
4	-6.04E-004
5	-1.09E-003
6	-1.38E-003
7	-1.37E-003
8	-1.26E-003
9	-6.34E-004
10	-2.38E-004
11	-1.28E-004
12	-2.45E-004
13	-1.86E-004
14	-1.52E-004
15	-2.56E-004
16	-5.79E-004
17	-9.43E-004
18	-1.17E-003
19	-1.17E-003
20	-1.13E-003
21	-8.48E-004
22	-5.60E-004
23	-2.54E-004
24	7.66E-005
25	5.81E-004
26	6.05E-004
27	4.09E-004
28	-3.84E-006
29	-4.35E-004

30	-6.85E-004
31	-6.74E-004
32	-5.67E-004
33	-1.22E-006
34	3.17E-004
35	3.27E-004
36	2.01E-004
37	2.48E-004
38	2.77E-004
39	1.90E-004
40	-5.60E-005
41	-2.85E-004
42	-3.22E-004
43	-2.81E-004
44	-2.46E-004
45	-2.58E-004
46	-1.45E-004
47	1.21E-004
48	5.11E-004
49	1.30E-003
50	1.33E-003
51	1.11E-003
52	6.57E-004
53	1.75E-004
54	-1.46E-004
55	-1.50E-004
56	-8.02E-005
57	3.30E-004
58	6.74E-004
59	9.68E-004
60	1.23E-003
61	1.27E-003
62	1.25E-003
63	9.27E-004
64	5.10E-004
65	1.79E-004
66	1.09E-004
67	1.54E-004
68	2.02E-004
69	3.04E-004
70	4.70E-004
71	7.87E-004
72	1.22E-003

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#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VminHmax                                #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	1.67E-005	-1.44E-003
2	1.55E-005	-1.45E-003
3	1.30E-005	-1.44E-003
4	1.06E-005	-1.43E-003
5	8.19E-006	-1.43E-003
6	5.77E-006	-1.44E-003
7	4.52E-006	-1.44E-003
8	-2.27E-006	-1.44E-003
9	-1.13E-005	-1.45E-003
10	-1.44E-005	-1.45E-003
11	-1.13E-005	-1.45E-003
12	-2.60E-006	-1.46E-003
13	5.90E-006	-1.46E-003
14	6.88E-006	-1.45E-003
15	8.79E-006	-1.46E-003
16	1.07E-005	-1.45E-003
17	1.26E-005	-1.44E-003
18	1.45E-005	-1.44E-003
19	1.55E-005	-1.45E-003
20	3.58E-005	-1.45E-003
21	6.38E-005	-1.45E-003
22	7.72E-005	-1.45E-003
23	6.22E-005	-1.45E-003
24	3.41E-005	-1.45E-003
25	6.09E-006	-1.47E-003
26	4.84E-006	-1.45E-003
27	2.42E-006	-1.43E-003
28	-1.94E-011	-1.42E-003
29	-2.42E-006	-1.43E-003
30	-4.84E-006	-1.45E-003
31	-6.09E-006	-1.47E-003
32	3.20E-006	-1.47E-003
33	6.01E-006	-1.47E-003
34	7.49E-006	-1.48E-003
35	6.84E-006	-1.48E-003
36	3.66E-006	-1.48E-003
37	-3.70E-006	-1.49E-003
38	-2.72E-006	-1.50E-003
39	-8.16E-007	-1.52E-003
40	1.09E-006	-1.52E-003
41	3.00E-006	-1.51E-003
42	4.90E-006	-1.49E-003
43	5.88E-006	-1.48E-003
44	-4.28E-006	-1.48E-003
45	-1.02E-005	-1.48E-003
46	-1.21E-005	-1.47E-003
47	-1.02E-005	-1.47E-003
48	-4.62E-006	-1.47E-003
49	-4.53E-006	-1.44E-003

50	-5.78E-006	-1.44E-003
51	-8.20E-006	-1.43E-003
52	-1.06E-005	-1.43E-003
53	-1.30E-005	-1.44E-003
54	-1.55E-005	-1.45E-003
55	-1.67E-005	-1.44E-003
56	-4.05E-005	-1.45E-003
57	-8.89E-005	-1.45E-003
58	-1.16E-004	-1.45E-003
59	-9.15E-005	-1.46E-003
60	-4.30E-005	-1.46E-003
61	-1.33E-005	-1.46E-003
62	-1.23E-005	-1.44E-003
63	-1.04E-005	-1.44E-003
64	-8.50E-006	-1.45E-003
65	-6.59E-006	-1.45E-003
66	-4.69E-006	-1.44E-003
67	-3.71E-006	-1.45E-003
68	2.00E-006	-1.45E-003
69	7.04E-006	-1.44E-003
70	8.70E-006	-1.44E-003
71	6.78E-006	-1.44E-003
72	8.72E-007	-1.44E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	-4.82E-005
2	-1.21E-005
3	6.08E-005
4	2.39E-005
5	-3.16E-005
6	-1.48E-005
7	8.15E-006
8	3.68E-005
9	2.27E-005
10	-2.57E-007
11	-2.20E-005
12	-3.80E-005
13	-1.98E-005
14	-3.59E-006
15	9.45E-006
16	-2.48E-005
17	-3.96E-005
18	3.19E-005
19	6.18E-005
20	8.70E-005
21	9.21E-005
22	-3.07E-006
23	-9.69E-005
24	-7.96E-005
25	4.86E-005
26	7.32E-005
27	8.38E-005
28	2.47E-006
29	-8.06E-005

30	-7.52E-005
31	-5.19E-005
32	-1.93E-005
33	-7.67E-006
34	-2.30E-006
35	7.81E-006
36	1.72E-005
37	3.94E-005
38	5.62E-005
39	5.73E-005
40	-6.58E-006
41	-6.86E-005
42	-6.20E-005
43	-4.39E-005
44	-3.11E-005
45	-1.39E-005
46	1.26E-007
47	1.33E-005
48	3.07E-005
49	-1.16E-005
50	1.10E-005
51	2.74E-005
52	-2.65E-005
53	-6.00E-005
54	1.85E-005
55	5.57E-005
56	1.21E-004
57	1.74E-004
58	4.99E-006
59	-1.66E-004
60	-1.36E-004
61	-8.29E-005
62	-5.17E-005
63	2.69E-005
64	1.70E-005
65	-1.45E-005
66	-7.00E-007
67	1.54E-005
68	2.40E-005
69	1.18E-005
70	-8.88E-008
71	-1.43E-005
72	-2.54E-005

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#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmax                                #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-3.63E-004	-3.09E-003
2	-3.64E-004	-3.03E-003
3	-3.66E-004	-2.97E-003
4	-3.67E-004	-3.00E-003
5	-3.69E-004	-3.13E-003
6	-3.71E-004	-3.33E-003
7	-3.71E-004	-3.54E-003
8	-1.81E-004	-3.54E-003
9	-7.88E-005	-3.55E-003
10	-6.17E-005	-3.56E-003
11	-7.32E-005	-3.56E-003
12	-6.18E-005	-3.57E-003
13	-4.52E-005	-3.58E-003
14	-4.45E-005	-3.58E-003
15	-4.32E-005	-3.58E-003
16	-4.20E-005	-3.55E-003
17	-4.07E-005	-3.44E-003
18	-3.94E-005	-3.28E-003
19	-3.88E-005	-3.11E-003
20	-2.01E-004	-3.11E-003
21	-3.23E-004	-3.11E-003
22	-3.98E-004	-3.10E-003
23	-4.33E-004	-3.10E-003
24	-4.19E-004	-3.09E-003
25	4.11E-006	-3.27E-003
26	3.27E-006	-3.17E-003
27	1.63E-006	-3.06E-003
28	-5.30E-011	-3.02E-003
29	-1.63E-006	-3.06E-003
30	-3.27E-006	-3.17E-003
31	-4.11E-006	-3.29E-003
32	9.24E-005	-3.29E-003
33	1.06E-004	-3.30E-003
34	4.85E-005	-3.31E-003
35	-1.20E-005	-3.32E-003
36	-2.95E-005	-3.32E-003
37	-4.47E-005	-3.33E-003
38	-4.41E-005	-3.36E-003
39	-4.28E-005	-3.40E-003
40	-4.16E-005	-3.42E-003
41	-4.03E-005	-3.38E-003
42	-3.91E-005	-3.33E-003
43	-3.84E-005	-3.29E-003
44	-6.57E-005	-3.29E-003
45	-9.16E-005	-3.28E-003
46	-1.22E-004	-3.28E-003
47	-1.30E-004	-3.28E-003
48	-8.75E-005	-3.27E-003
49	3.58E-004	-3.52E-003

50	3.57E-004	-3.33E-003
51	3.56E-004	-3.14E-003
52	3.54E-004	-3.00E-003
53	3.52E-004	-2.97E-003
54	3.51E-004	-3.02E-003
55	3.50E-004	-3.08E-003
56	4.03E-004	-3.09E-003
57	3.99E-004	-3.10E-003
58	3.43E-004	-3.10E-003
59	2.58E-004	-3.11E-003
60	1.30E-004	-3.12E-003
61	-4.43E-005	-3.12E-003
62	-4.36E-005	-3.30E-003
63	-4.24E-005	-3.47E-003
64	-4.12E-005	-3.56E-003
65	-4.00E-005	-3.58E-003
66	-3.87E-005	-3.55E-003
67	-3.81E-005	-3.55E-003
68	-3.38E-005	-3.54E-003
69	-1.52E-005	-3.54E-003
70	8.96E-006	-3.53E-003
71	6.25E-005	-3.53E-003
72	1.81E-004	-3.53E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	2.24E-004
2	2.49E-004
3	8.26E-005
4	-2.76E-004
5	-6.30E-004
6	-7.75E-004
7	-7.43E-004
8	-6.21E-004
9	-1.81E-004
10	2.34E-005
11	2.69E-005
12	-8.86E-005
13	-2.41E-005
14	1.93E-005
15	-1.20E-005
16	-2.48E-004
17	-5.13E-004
18	-6.31E-004
19	-6.08E-004
20	-5.61E-004
21	-3.47E-004
22	-2.00E-004
23	-5.13E-005
24	1.72E-004
25	3.61E-004
26	3.99E-004
27	3.03E-004
28	-1.96E-006
29	-3.15E-004

30	-4.34E-004
31	-4.01E-004
32	-2.83E-004
33	1.23E-004
34	2.55E-004
35	1.44E-004
36	2.86E-005
37	9.01E-005
38	1.34E-004
39	1.36E-004
40	-3.10E-005
41	-1.90E-004
42	-1.67E-004
43	-1.19E-004
44	-8.30E-005
45	-1.16E-004
46	-8.72E-005
47	4.40E-005
48	2.95E-004
49	6.76E-004
50	7.21E-004
51	6.33E-004
52	3.08E-004
53	-5.11E-005
54	-2.46E-004
55	-2.30E-004
56	-1.48E-004
57	1.37E-004
58	2.60E-004
59	3.67E-004
60	5.96E-004
61	6.60E-004
62	6.70E-004
63	4.88E-004
64	1.89E-004
65	-5.15E-005
66	-5.78E-005
67	-6.87E-006
68	3.75E-005
69	7.62E-005
70	1.20E-004
71	2.90E-004
72	6.01E-004

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#####
#                VERIFICAÇÃO DA FADIGA (ELS)                #
#                VmaxHmin                                    #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-2.78E-004	-2.05E-003
2	-2.79E-004	-2.01E-003
3	-2.80E-004	-1.98E-003
4	-2.81E-004	-2.01E-003
5	-2.81E-004	-2.10E-003
6	-2.82E-004	-2.23E-003
7	-2.83E-004	-2.36E-003
8	-1.60E-004	-2.36E-003
9	-7.81E-005	-2.37E-003
10	-4.23E-005	-2.37E-003
11	-2.84E-005	-2.37E-003
12	-1.59E-005	-2.37E-003
13	-6.57E-006	-2.38E-003
14	-6.31E-006	-2.37E-003
15	-5.80E-006	-2.38E-003
16	-5.29E-006	-2.36E-003
17	-4.78E-006	-2.29E-003
18	-4.27E-006	-2.18E-003
19	-4.01E-006	-2.06E-003
20	-1.22E-004	-2.06E-003
21	-2.17E-004	-2.06E-003
22	-2.79E-004	-2.05E-003
23	-3.12E-004	-2.05E-003
24	-3.09E-004	-2.05E-003
25	2.23E-006	-2.18E-003
26	1.77E-006	-2.12E-003
27	8.87E-007	-2.05E-003
28	6.01E-011	-2.02E-003
29	-8.87E-007	-2.05E-003
30	-1.77E-006	-2.11E-003
31	-2.23E-006	-2.18E-003
32	5.44E-005	-2.18E-003
33	7.37E-005	-2.18E-003
34	5.55E-005	-2.19E-003
35	2.85E-005	-2.19E-003
36	1.25E-005	-2.19E-003
37	-4.55E-006	-2.19E-003
38	-4.29E-006	-2.22E-003
39	-3.78E-006	-2.25E-003
40	-3.28E-006	-2.27E-003
41	-2.77E-006	-2.25E-003
42	-2.27E-006	-2.22E-003
43	-2.01E-006	-2.20E-003
44	-1.85E-005	-2.20E-003
45	-3.75E-005	-2.19E-003
46	-6.44E-005	-2.19E-003
47	-7.88E-005	-2.19E-003
48	-5.65E-005	-2.19E-003
49	2.73E-004	-2.36E-003

50	2.72E-004	-2.23E-003
51	2.71E-004	-2.10E-003
52	2.71E-004	-2.01E-003
53	2.70E-004	-1.98E-003
54	2.69E-004	-2.01E-003
55	2.68E-004	-2.05E-003
56	2.99E-004	-2.05E-003
57	3.02E-004	-2.05E-003
58	2.69E-004	-2.05E-003
59	2.08E-004	-2.06E-003
60	1.14E-004	-2.06E-003
61	-2.69E-006	-2.06E-003
62	-2.43E-006	-2.18E-003
63	-1.92E-006	-2.29E-003
64	-1.41E-006	-2.36E-003
65	-8.98E-007	-2.38E-003
66	-3.88E-007	-2.37E-003
67	-1.26E-007	-2.37E-003
68	9.88E-006	-2.37E-003
69	2.64E-005	-2.37E-003
70	4.09E-005	-2.37E-003
71	7.33E-005	-2.36E-003
72	1.52E-004	-2.36E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.25E-004
2	1.39E-004
3	2.23E-005
4	-2.10E-004
5	-4.28E-004
6	-4.95E-004
7	-4.68E-004
8	-4.19E-004
9	-1.96E-004
10	-7.73E-005
11	-3.74E-005
12	-4.63E-005
13	-2.01E-005
14	1.10E-005
15	6.97E-007
16	-1.55E-004
17	-3.42E-004
18	-4.49E-004
19	-4.41E-004
20	-4.15E-004
21	-2.81E-004
22	-1.73E-004
23	-6.12E-005
24	9.22E-005
25	2.32E-004
26	2.57E-004
27	1.95E-004
28	1.12E-006
29	-1.92E-004

30	-2.50E-004
31	-2.25E-004
32	-1.79E-004
33	1.71E-005
34	9.87E-005
35	8.12E-005
36	5.12E-005
37	7.43E-005
38	1.04E-004
39	1.10E-004
40	3.37E-006
41	-1.05E-004
42	-1.01E-004
43	-7.18E-005
44	-5.07E-005
45	-9.42E-005
46	-8.83E-005
47	-3.02E-006
48	1.87E-004
49	4.61E-004
50	4.88E-004
51	4.24E-004
52	2.09E-004
53	-2.21E-005
54	-1.38E-004
55	-1.25E-004
56	-9.19E-005
57	6.04E-005
58	1.71E-004
59	2.77E-004
60	4.10E-004
61	4.37E-004
62	4.45E-004
63	3.38E-004
64	1.51E-004
65	-2.14E-006
66	-9.62E-006
67	2.20E-005
68	5.01E-005
69	5.36E-005
70	6.89E-005
71	1.83E-004
72	4.10E-004

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#####
#                VERIFICAÇÃO DA FADIGA (ELS)                #
#                VminHmax                                    #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-1.45E-009	-1.46E-003
2	-8.59E-007	-1.45E-003
3	-2.53E-006	-1.43E-003
4	-4.20E-006	-1.42E-003
5	-5.86E-006	-1.43E-003
6	-7.53E-006	-1.45E-003
7	-8.39E-006	-1.47E-003
8	-2.67E-007	-1.47E-003
9	9.55E-008	-1.47E-003
10	1.95E-007	-1.47E-003
11	1.28E-006	-1.48E-003
12	2.94E-006	-1.48E-003
13	1.86E-006	-1.48E-003
14	2.49E-006	-1.48E-003
15	3.71E-006	-1.50E-003
16	4.93E-006	-1.50E-003
17	6.16E-006	-1.49E-003
18	7.38E-006	-1.48E-003
19	8.01E-006	-1.47E-003
20	3.47E-006	-1.47E-003
21	8.13E-006	-1.47E-003
22	1.06E-005	-1.46E-003
23	2.48E-006	-1.46E-003
24	-5.29E-006	-1.46E-003
25	4.20E-006	-1.46E-003
26	3.34E-006	-1.45E-003
27	1.67E-006	-1.43E-003
28	2.46E-011	-1.42E-003
29	-1.67E-006	-1.43E-003
30	-3.34E-006	-1.45E-003
31	-4.20E-006	-1.46E-003
32	1.75E-006	-1.46E-003
33	1.31E-007	-1.47E-003
34	-1.32E-006	-1.47E-003
35	-1.60E-006	-1.47E-003
36	-1.17E-006	-1.47E-003
37	-3.08E-006	-1.47E-003
38	-2.45E-006	-1.48E-003
39	-1.23E-006	-1.49E-003
40	-5.18E-009	-1.50E-003
41	1.22E-006	-1.49E-003
42	2.44E-006	-1.48E-003
43	3.07E-006	-1.47E-003
44	1.17E-006	-1.47E-003
45	1.79E-006	-1.47E-003
46	1.49E-006	-1.47E-003
47	-1.13E-007	-1.47E-003
48	-1.76E-006	-1.46E-003
49	8.39E-006	-1.47E-003

50	7.53E-006	-1.45E-003
51	5.86E-006	-1.43E-003
52	4.19E-006	-1.42E-003
53	2.52E-006	-1.43E-003
54	8.55E-007	-1.45E-003
55	-2.57E-009	-1.46E-003
56	5.28E-006	-1.46E-003
57	-2.48E-006	-1.46E-003
58	-1.06E-005	-1.46E-003
59	-8.14E-006	-1.47E-003
60	-3.47E-006	-1.47E-003
61	-8.01E-006	-1.47E-003
62	-7.38E-006	-1.48E-003
63	-6.16E-006	-1.49E-003
64	-4.93E-006	-1.50E-003
65	-3.71E-006	-1.50E-003
66	-2.49E-006	-1.48E-003
67	-1.86E-006	-1.48E-003
68	-2.95E-006	-1.48E-003
69	-1.48E-006	-1.48E-003
70	-3.78E-007	-1.47E-003
71	-1.17E-007	-1.47E-003
72	2.70E-007	-1.47E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	3.15E-005
2	5.62E-005
3	6.97E-005
4	-6.52E-006
5	-8.21E-005
6	-6.67E-005
7	-4.14E-005
8	-1.70E-005
9	1.61E-006
10	-2.24E-006
11	-5.58E-006
12	-2.43E-006
13	1.15E-005
14	3.09E-005
15	4.72E-005
16	-4.46E-006
17	-5.72E-005
18	-4.44E-005
19	-2.58E-005
20	-5.69E-006
21	2.37E-005
22	-1.08E-005
23	-4.18E-005
24	4.77E-006
25	3.35E-005
26	5.87E-005
27	7.45E-005
28	4.69E-009
29	-7.45E-005

30	-5.86E-005
31	-3.35E-005
32	-9.14E-006
33	8.01E-006
34	2.83E-006
35	-4.19E-007
36	7.71E-007
37	1.44E-005
38	3.37E-005
39	5.03E-005
40	1.01E-008
41	-5.02E-005
42	-3.37E-005
43	-1.44E-005
44	-6.70E-007
45	1.16E-006
46	-3.39E-006
47	-8.37E-006
48	9.16E-006
49	4.14E-005
50	6.66E-005
51	8.21E-005
52	6.51E-006
53	-6.97E-005
54	-5.62E-005
55	-3.15E-005
56	-4.77E-006
57	4.18E-005
58	1.08E-005
59	-2.37E-005
60	5.68E-006
61	2.58E-005
62	4.44E-005
63	5.72E-005
64	4.45E-006
65	-4.72E-005
66	-3.09E-005
67	-1.15E-005
68	2.34E-006
69	4.84E-006
70	2.81E-006
71	-1.25E-006
72	1.69E-005

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#####
#                VERIFICAÇÃO DA FADIGA (ELS)                #
#                VmaxHmax                                    #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-2.05E-004	-2.07E-003
2	-2.06E-004	-2.03E-003
3	-2.07E-004	-2.00E-003
4	-2.08E-004	-2.02E-003
5	-2.09E-004	-2.09E-003
6	-2.10E-004	-2.20E-003
7	-2.11E-004	-2.31E-003
8	-1.14E-004	-2.31E-003
9	-5.44E-005	-2.31E-003
10	-2.90E-005	-2.31E-003
11	-1.83E-005	-2.32E-003
12	-9.06E-006	-2.32E-003
13	-4.25E-006	-2.32E-003
14	-3.84E-006	-2.32E-003
15	-3.05E-006	-2.34E-003
16	-2.26E-006	-2.33E-003
17	-1.46E-006	-2.27E-003
18	-6.67E-007	-2.18E-003
19	-2.59E-007	-2.08E-003
20	-9.44E-005	-2.08E-003
21	-1.67E-004	-2.08E-003
22	-2.13E-004	-2.08E-003
23	-2.39E-004	-2.07E-003
24	-2.35E-004	-2.07E-003
25	2.86E-006	-2.17E-003
26	2.27E-006	-2.11E-003
27	1.14E-006	-2.05E-003
28	5.35E-011	-2.03E-003
29	-1.14E-006	-2.05E-003
30	-2.27E-006	-2.11E-003
31	-2.86E-006	-2.17E-003
32	4.16E-005	-2.17E-003
33	5.28E-005	-2.17E-003
34	3.75E-005	-2.17E-003
35	1.83E-005	-2.17E-003
36	7.96E-006	-2.18E-003
37	-4.08E-006	-2.18E-003
38	-3.68E-006	-2.20E-003
39	-2.88E-006	-2.23E-003
40	-2.09E-006	-2.24E-003
41	-1.30E-006	-2.23E-003
42	-5.11E-007	-2.20E-003
43	-1.04E-007	-2.18E-003
44	-1.18E-005	-2.18E-003
45	-2.41E-005	-2.18E-003
46	-4.32E-005	-2.17E-003
47	-5.60E-005	-2.17E-003
48	-4.29E-005	-2.17E-003
49	2.04E-004	-2.31E-003

50	2.04E-004	-2.20E-003
51	2.03E-004	-2.09E-003
52	2.01E-004	-2.02E-003
53	2.00E-004	-2.00E-003
54	1.99E-004	-2.03E-003
55	1.99E-004	-2.07E-003
56	2.29E-004	-2.07E-003
57	2.32E-004	-2.07E-003
58	2.07E-004	-2.08E-003
59	1.61E-004	-2.08E-003
60	8.94E-005	-2.08E-003
61	-4.01E-006	-2.08E-003
62	-3.61E-006	-2.18E-003
63	-2.81E-006	-2.27E-003
64	-2.02E-006	-2.33E-003
65	-1.22E-006	-2.33E-003
66	-4.30E-007	-2.32E-003
67	-2.15E-008	-2.32E-003
68	5.22E-006	-2.32E-003
69	1.70E-005	-2.32E-003
70	2.81E-005	-2.31E-003
71	5.13E-005	-2.31E-003
72	1.09E-004	-2.31E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.24E-004
2	1.41E-004
3	4.73E-005
4	-1.63E-004
5	-3.58E-004
6	-4.03E-004
7	-3.73E-004
8	-3.24E-004
9	-1.36E-004
10	-5.71E-005
11	-2.98E-005
12	-3.00E-005
13	-3.55E-006
14	2.86E-005
15	2.89E-005
16	-1.12E-004
17	-2.81E-004
18	-3.66E-004
19	-3.54E-004
20	-3.26E-004
21	-2.10E-004
22	-1.32E-004
23	-4.86E-005
24	8.96E-005
25	1.86E-004
26	2.14E-004
27	1.74E-004
28	7.12E-007
29	-1.72E-004

30	-2.10E-004
31	-1.81E-004
32	-1.35E-004
33	2.67E-005
34	7.33E-005
35	5.54E-005
36	3.32E-005
37	5.64E-005
38	8.69E-005
39	1.01E-004
40	2.15E-006
41	-9.74E-005
42	-8.49E-005
43	-5.47E-005
44	-3.29E-005
45	-6.38E-005
46	-6.67E-005
47	-1.77E-005
48	1.41E-004
49	3.68E-004
50	3.99E-004
51	3.56E-004
52	1.62E-004
53	-4.72E-005
54	-1.41E-004
55	-1.23E-004
56	-8.94E-005
57	4.81E-005
58	1.31E-004
59	2.08E-004
60	3.24E-004
61	3.51E-004
62	3.63E-004
63	2.78E-004
64	1.10E-004
65	-2.98E-005
66	-2.77E-005
67	4.77E-006
68	3.24E-005
69	4.01E-005
70	5.17E-005
71	1.27E-004
72	3.18E-004

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#####
#                VERIFICAÇÃO DA FADIGA (ELS)                #
#                VminHmin                                    #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-9.83E-005	-1.44E-003
2	-9.87E-005	-1.42E-003
3	-9.96E-005	-1.39E-003
4	-1.00E-004	-1.40E-003
5	-1.01E-004	-1.44E-003
6	-1.02E-004	-1.50E-003
7	-1.03E-004	-1.56E-003
8	-5.19E-005	-1.56E-003
9	-2.39E-005	-1.56E-003
10	-1.25E-005	-1.56E-003
11	-7.05E-006	-1.56E-003
12	-2.82E-006	-1.57E-003
13	-1.95E-006	-1.57E-003
14	-1.69E-006	-1.57E-003
15	-1.19E-006	-1.58E-003
16	-6.79E-007	-1.58E-003
17	-1.71E-007	-1.55E-003
18	3.36E-007	-1.50E-003
19	5.98E-007	-1.45E-003
20	-4.89E-005	-1.45E-003
21	-8.60E-005	-1.45E-003
22	-1.09E-004	-1.45E-003
23	-1.23E-004	-1.44E-003
24	-1.19E-004	-1.44E-003
25	2.23E-006	-1.49E-003
26	1.77E-006	-1.46E-003
27	8.86E-007	-1.42E-003
28	3.30E-011	-1.41E-003
29	-8.86E-007	-1.42E-003
30	-1.77E-006	-1.46E-003
31	-2.23E-006	-1.48E-003
32	2.11E-005	-1.49E-003
33	2.43E-005	-1.49E-003
34	1.57E-005	-1.49E-003
35	7.08E-006	-1.49E-003
36	3.09E-006	-1.49E-003
37	-2.06E-006	-1.49E-003
38	-1.80E-006	-1.50E-003
39	-1.29E-006	-1.52E-003
40	-7.86E-007	-1.53E-003
41	-2.80E-007	-1.52E-003
42	2.26E-007	-1.50E-003
43	4.86E-007	-1.49E-003
44	-4.53E-006	-1.49E-003
45	-9.24E-006	-1.49E-003
46	-1.79E-005	-1.49E-003
47	-2.55E-005	-1.49E-003
48	-2.16E-005	-1.49E-003
49	1.00E-004	-1.56E-003

50	9.99E-005	-1.50E-003
51	9.90E-005	-1.44E-003
52	9.81E-005	-1.40E-003
53	9.72E-005	-1.39E-003
54	9.63E-005	-1.42E-003
55	9.59E-005	-1.44E-003
56	1.16E-004	-1.44E-003
57	1.20E-004	-1.44E-003
58	1.07E-004	-1.45E-003
59	8.38E-005	-1.45E-003
60	4.70E-005	-1.45E-003
61	-2.20E-006	-1.45E-003
62	-1.94E-006	-1.50E-003
63	-1.43E-006	-1.55E-003
64	-9.26E-007	-1.58E-003
65	-4.18E-007	-1.58E-003
66	8.95E-008	-1.57E-003
67	3.50E-007	-1.57E-003
68	1.38E-006	-1.56E-003
69	6.57E-006	-1.56E-003
70	1.21E-005	-1.56E-003
71	2.28E-005	-1.56E-003
72	5.01E-005	-1.56E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	8.45E-005
2	9.78E-005
3	4.64E-005
4	-8.29E-005
5	-2.02E-004
6	-2.20E-004
7	-1.98E-004
8	-1.66E-004
9	-5.93E-005
10	-2.74E-005
11	-1.52E-005
12	-1.09E-005
13	5.29E-006
14	2.50E-005
15	2.90E-005
16	-5.08E-005
17	-1.48E-004
18	-1.95E-004
19	-1.87E-004
20	-1.71E-004
21	-1.06E-004
22	-6.73E-005
23	-2.38E-005
24	6.15E-005
25	9.94E-005
26	1.20E-004
27	1.05E-004
28	2.67E-007
29	-1.04E-004

30	-1.18E-004
31	-9.76E-005
32	-6.74E-005
33	2.26E-005
34	3.53E-005
35	2.34E-005
36	1.24E-005
37	2.62E-005
38	4.48E-005
39	5.63E-005
40	8.08E-007
41	-5.49E-005
42	-4.41E-005
43	-2.56E-005
44	-1.23E-005
45	-2.66E-005
46	-3.29E-005
47	-1.92E-005
48	6.94E-005
49	1.97E-004
50	2.18E-004
51	2.01E-004
52	8.27E-005
53	-4.63E-005
54	-9.77E-005
55	-8.44E-005
56	-6.14E-005
57	2.36E-005
58	6.69E-005
59	1.05E-004
60	1.70E-004
61	1.86E-004
62	1.93E-004
63	1.46E-004
64	4.99E-005
65	-2.94E-005
66	-2.46E-005
67	-4.83E-006
68	1.18E-005
69	1.91E-005
70	2.54E-005
71	5.61E-005
72	1.64E-004

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#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmin          #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-2.11E-004	-1.82E-003
2	-2.11E-004	-1.79E-003
3	-2.12E-004	-1.76E-003
4	-2.13E-004	-1.78E-003
5	-2.14E-004	-1.85E-003
6	-2.15E-004	-1.96E-003
7	-2.15E-004	-2.06E-003
8	-1.19E-004	-2.06E-003
9	-5.78E-005	-2.06E-003
10	-3.11E-005	-2.07E-003
11	-2.04E-005	-2.07E-003
12	-1.10E-005	-2.07E-003
13	-4.84E-006	-2.07E-003
14	-4.58E-006	-2.07E-003
15	-4.07E-006	-2.08E-003
16	-3.56E-006	-2.07E-003
17	-3.05E-006	-2.01E-003
18	-2.54E-006	-1.93E-003
19	-2.28E-006	-1.83E-003
20	-9.48E-005	-1.83E-003
21	-1.68E-004	-1.83E-003
22	-2.16E-004	-1.83E-003
23	-2.41E-004	-1.82E-003
24	-2.38E-004	-1.82E-003
25	2.23E-006	-1.92E-003
26	1.77E-006	-1.87E-003
27	8.87E-007	-1.81E-003
28	5.00E-011	-1.79E-003
29	-8.87E-007	-1.81E-003
30	-1.77E-006	-1.87E-003
31	-2.23E-006	-1.92E-003
32	4.19E-005	-1.92E-003
33	5.52E-005	-1.92E-003
34	4.06E-005	-1.92E-003
35	2.05E-005	-1.93E-003
36	8.95E-006	-1.93E-003
37	-3.62E-006	-1.93E-003
38	-3.36E-006	-1.95E-003
39	-2.85E-006	-1.98E-003
40	-2.34E-006	-1.99E-003
41	-1.84E-006	-1.98E-003
42	-1.33E-006	-1.95E-003
43	-1.07E-006	-1.93E-003
44	-1.33E-005	-1.93E-003
45	-2.69E-005	-1.93E-003
46	-4.70E-005	-1.93E-003
47	-5.88E-005	-1.93E-003
48	-4.34E-005	-1.92E-003
49	2.08E-004	-2.06E-003

50	2.08E-004	-1.96E-003
51	2.07E-004	-1.85E-003
52	2.06E-004	-1.78E-003
53	2.05E-004	-1.76E-003
54	2.04E-004	-1.79E-003
55	2.04E-004	-1.82E-003
56	2.30E-004	-1.82E-003
57	2.34E-004	-1.82E-003
58	2.09E-004	-1.83E-003
59	1.61E-004	-1.83E-003
60	8.91E-005	-1.83E-003
61	-2.51E-006	-1.83E-003
62	-2.24E-006	-1.93E-003
63	-1.74E-006	-2.01E-003
64	-1.23E-006	-2.07E-003
65	-7.18E-007	-2.08E-003
66	-2.09E-007	-2.07E-003
67	5.27E-008	-2.07E-003
68	6.70E-006	-2.07E-003
69	1.89E-005	-2.07E-003
70	3.01E-005	-2.06E-003
71	5.43E-005	-2.06E-003
72	1.14E-004	-2.06E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.10E-004
2	1.24E-004
3	3.13E-005
4	-1.63E-004
5	-3.43E-004
6	-3.92E-004
7	-3.67E-004
8	-3.24E-004
9	-1.45E-004
10	-5.86E-005
11	-2.91E-005
12	-3.30E-005
13	-1.06E-005
14	1.62E-005
15	1.13E-005
16	-1.16E-004
17	-2.69E-004
18	-3.54E-004
19	-3.46E-004
20	-3.23E-004
21	-2.15E-004
22	-1.34E-004
23	-4.72E-005
24	8.07E-005
25	1.82E-004
26	2.05E-004
27	1.61E-004
28	7.98E-007
29	-1.59E-004

30	-2.01E-004
31	-1.77E-004
32	-1.37E-004
33	1.92E-005
34	7.50E-005
35	5.95E-005
36	3.67E-005
37	5.63E-005
38	8.17E-005
39	9.01E-005
40	2.41E-006
41	-8.59E-005
42	-7.94E-005
43	-5.45E-005
44	-3.63E-005
45	-6.89E-005
46	-6.75E-005
47	-9.09E-006
48	1.43E-004
49	3.62E-004
50	3.87E-004
51	3.40E-004
52	1.62E-004
53	-3.12E-005
54	-1.23E-004
55	-1.10E-004
56	-8.05E-005
57	4.66E-005
58	1.32E-004
59	2.13E-004
60	3.20E-004
61	3.42E-004
62	3.51E-004
63	2.66E-004
64	1.13E-004
65	-1.23E-005
66	-1.53E-005
67	1.19E-005
68	3.57E-005
69	4.07E-005
70	5.26E-005
71	1.35E-004
72	3.18E-004

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#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VminHmax          #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-6.85E-006	-1.46E-003
2	-7.64E-006	-1.45E-003
3	-9.16E-006	-1.42E-003
4	-1.07E-005	-1.42E-003
5	-1.22E-005	-1.43E-003
6	-1.37E-005	-1.46E-003
7	-1.45E-005	-1.48E-003
8	-2.11E-006	-1.48E-003
9	1.01E-007	-1.48E-003
10	8.64E-007	-1.48E-003
11	2.09E-006	-1.48E-003
12	3.26E-006	-1.49E-003
13	1.16E-006	-1.49E-003
14	1.71E-006	-1.49E-003
15	2.77E-006	-1.51E-003
16	3.84E-006	-1.52E-003
17	4.90E-006	-1.51E-003
18	5.97E-006	-1.48E-003
19	6.52E-006	-1.47E-003
20	-4.43E-006	-1.47E-003
21	-5.55E-006	-1.47E-003
22	-5.77E-006	-1.47E-003
23	-1.27E-005	-1.46E-003
24	-1.65E-005	-1.46E-003
25	3.84E-006	-1.46E-003
26	3.05E-006	-1.45E-003
27	1.53E-006	-1.43E-003
28	2.52E-011	-1.42E-003
29	-1.53E-006	-1.43E-003
30	-3.05E-006	-1.45E-003
31	-3.84E-006	-1.46E-003
32	2.87E-006	-1.47E-003
33	3.18E-007	-1.47E-003
34	-1.99E-006	-1.47E-003
35	-2.40E-006	-1.47E-003
36	-1.46E-006	-1.47E-003
37	-2.68E-006	-1.47E-003
38	-2.14E-006	-1.48E-003
39	-1.07E-006	-1.49E-003
40	-5.06E-009	-1.50E-003
41	1.06E-006	-1.49E-003
42	2.13E-006	-1.48E-003
43	2.67E-006	-1.47E-003
44	1.46E-006	-1.47E-003
45	2.58E-006	-1.47E-003
46	2.16E-006	-1.47E-003
47	-3.00E-007	-1.47E-003
48	-2.87E-006	-1.47E-003
49	1.45E-005	-1.48E-003

50	1.37E-005	-1.46E-003
51	1.22E-005	-1.43E-003
52	1.07E-005	-1.42E-003
53	9.16E-006	-1.42E-003
54	7.63E-006	-1.45E-003
55	6.85E-006	-1.46E-003
56	1.65E-005	-1.46E-003
57	1.27E-005	-1.46E-003
58	5.77E-006	-1.47E-003
59	5.54E-006	-1.47E-003
60	4.43E-006	-1.47E-003
61	-6.52E-006	-1.47E-003
62	-5.97E-006	-1.48E-003
63	-4.90E-006	-1.51E-003
64	-3.84E-006	-1.52E-003
65	-2.77E-006	-1.51E-003
66	-1.71E-006	-1.49E-003
67	-1.16E-006	-1.49E-003
68	-3.27E-006	-1.49E-003
69	-2.28E-006	-1.48E-003
70	-1.04E-006	-1.48E-003
71	-1.22E-007	-1.48E-003
72	2.12E-006	-1.48E-003

DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	4.67E-005
2	6.91E-005
3	6.99E-005
4	-1.52E-005
5	-9.63E-005
6	-8.31E-005
7	-5.77E-005
8	-3.09E-005
9	-1.68E-006
10	-3.74E-006
11	-5.02E-006
12	8.04E-007
13	1.55E-005
14	3.54E-005
15	5.14E-005
16	-4.56E-006
17	-6.56E-005
18	-6.49E-005
19	-4.86E-005
20	-2.93E-005
21	7.10E-006
22	-1.34E-005
23	-3.11E-005
24	2.10E-005
25	3.67E-005
26	6.16E-005
27	7.60E-005
28	4.58E-009
29	-7.59E-005

30	-6.16E-005
31	-3.66E-005
32	-1.06E-005
33	1.25E-005
34	4.58E-006
35	-1.19E-006
36	-1.81E-006
37	1.20E-005
38	3.14E-005
39	4.91E-005
40	9.91E-009
41	-4.91E-005
42	-3.14E-005
43	-1.20E-005
44	1.91E-006
45	1.92E-006
46	-5.12E-006
47	-1.29E-005
48	1.07E-005
49	5.77E-005
50	8.30E-005
51	9.62E-005
52	1.52E-005
53	-6.99E-005
54	-6.91E-005
55	-4.67E-005
56	-2.10E-005
57	3.11E-005
58	1.34E-005
59	-7.10E-006
60	2.93E-005
61	4.86E-005
62	6.49E-005
63	6.56E-005
64	4.55E-006
65	-5.14E-005
66	-3.54E-005
67	-1.55E-005
68	-8.95E-007
69	4.30E-006
70	4.29E-006
71	2.04E-006
72	3.09E-005

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#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmax          #
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DESLOCAMENTOS NAS SEÇÕES DE INTERESSE NAS DIR. X E Y

SEÇÃO	DIREÇÃO X (m)	DIREÇÃO Y (m)
1	-1.65E-004	-1.83E-003
2	-1.65E-004	-1.80E-003
3	-1.67E-004	-1.77E-003
4	-1.68E-004	-1.79E-003
5	-1.69E-004	-1.85E-003
6	-1.70E-004	-1.94E-003
7	-1.70E-004	-2.03E-003
8	-9.06E-005	-2.03E-003
9	-4.30E-005	-2.03E-003
10	-2.28E-005	-2.03E-003
11	-1.41E-005	-2.03E-003
12	-6.72E-006	-2.04E-003
13	-3.39E-006	-2.04E-003
14	-3.04E-006	-2.04E-003
15	-2.35E-006	-2.05E-003
16	-1.66E-006	-2.05E-003
17	-9.77E-007	-2.00E-003
18	-2.91E-007	-1.93E-003
19	6.23E-008	-1.84E-003
20	-7.73E-005	-1.84E-003
21	-1.36E-004	-1.84E-003
22	-1.74E-004	-1.84E-003
23	-1.95E-004	-1.84E-003
24	-1.91E-004	-1.84E-003
25	2.62E-006	-1.91E-003
26	2.09E-006	-1.87E-003
27	1.04E-006	-1.82E-003
28	4.58E-011	-1.80E-003
29	-1.04E-006	-1.82E-003
30	-2.09E-006	-1.87E-003
31	-2.62E-006	-1.91E-003
32	3.39E-005	-1.91E-003
33	4.21E-005	-1.91E-003
34	2.94E-005	-1.92E-003
35	1.41E-005	-1.92E-003
36	6.14E-006	-1.92E-003
37	-3.32E-006	-1.92E-003
38	-2.97E-006	-1.94E-003
39	-2.29E-006	-1.96E-003
40	-1.60E-006	-1.97E-003
41	-9.19E-007	-1.96E-003
42	-2.34E-007	-1.94E-003
43	1.18E-007	-1.92E-003
44	-9.08E-006	-1.92E-003
45	-1.85E-005	-1.92E-003
46	-3.37E-005	-1.92E-003
47	-4.46E-005	-1.92E-003
48	-3.49E-005	-1.91E-003
49	1.65E-004	-2.02E-003

50	1.65E-004	-1.94E-003
51	1.64E-004	-1.85E-003
52	1.63E-004	-1.79E-003
53	1.62E-004	-1.77E-003
54	1.61E-004	-1.80E-003
55	1.60E-004	-1.83E-003
56	1.86E-004	-1.84E-003
57	1.90E-004	-1.84E-003
58	1.70E-004	-1.84E-003
59	1.32E-004	-1.84E-003
60	7.35E-005	-1.84E-003
61	-3.33E-006	-1.84E-003
62	-2.98E-006	-1.93E-003
63	-2.29E-006	-2.00E-003
64	-1.61E-006	-2.05E-003
65	-9.22E-007	-2.05E-003
66	-2.35E-007	-2.04E-003
67	1.18E-007	-2.04E-003
68	3.78E-006	-2.04E-003
69	1.31E-005	-2.03E-003
70	2.21E-005	-2.03E-003
71	4.06E-005	-2.03E-003
72	8.68E-005	-2.03E-003

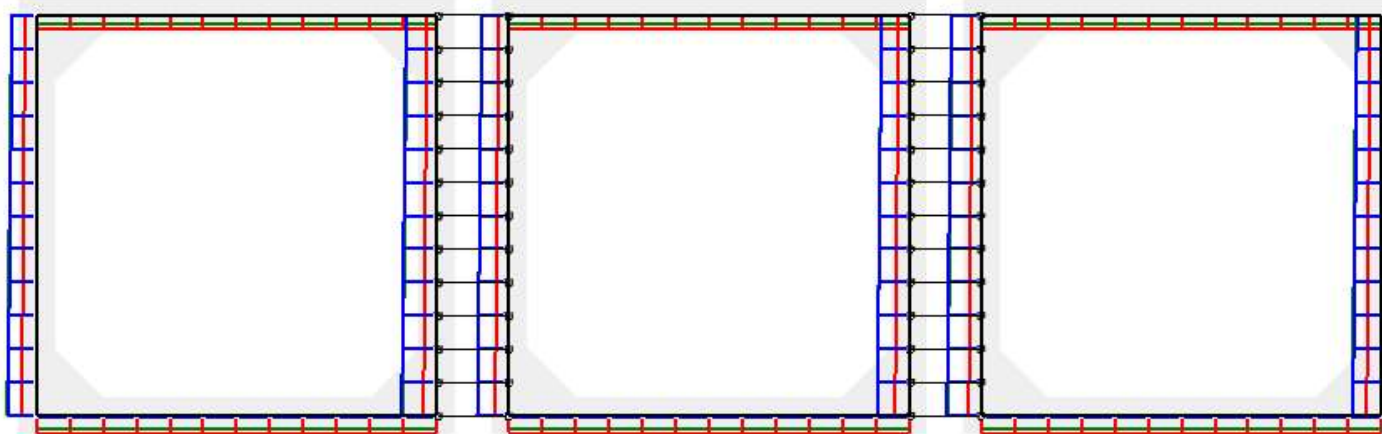
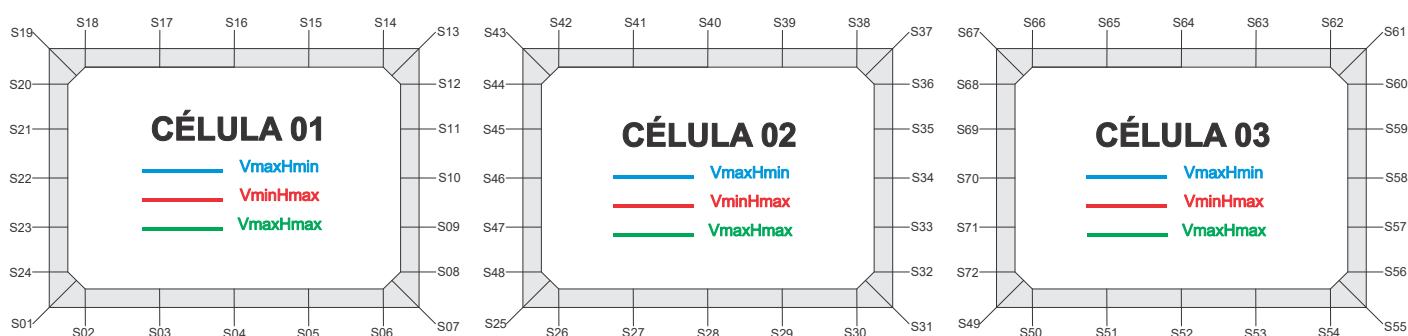
DESLOCAMENTOS NAS SEÇÕES DE INTERESSE (ROTAÇÃO)

SEÇÃO	ROTAÇÃO (rad)
1	1.09E-004
2	1.25E-004
3	4.69E-005
4	-1.33E-004
5	-3.00E-004
6	-3.34E-004
7	-3.07E-004
8	-2.64E-004
9	-1.07E-004
10	-4.60E-005
11	-2.43E-005
12	-2.28E-005
13	-2.34E-007
14	2.72E-005
15	2.89E-005
16	-8.89E-005
17	-2.31E-004
18	-3.02E-004
19	-2.91E-004
20	-2.68E-004
21	-1.71E-004
22	-1.08E-004
23	-3.93E-005
24	7.90E-005
25	1.53E-004
26	1.78E-004
27	1.48E-004
28	5.45E-007
29	-1.46E-004

30	-1.75E-004
31	-1.50E-004
32	-1.10E-004
33	2.52E-005
34	5.91E-005
35	4.34E-005
36	2.54E-005
37	4.51E-005
38	7.11E-005
39	8.43E-005
40	1.65E-006
41	-8.15E-005
42	-6.96E-005
43	-4.38E-005
44	-2.51E-005
45	-4.98E-005
46	-5.40E-005
47	-1.83E-005
48	1.14E-004
49	3.04E-004
50	3.31E-004
51	2.98E-004
52	1.32E-004
53	-4.69E-005
54	-1.25E-004
55	-1.09E-004
56	-7.89E-005
57	3.89E-005
58	1.07E-004
59	1.69E-004
60	2.66E-004
61	2.89E-004
62	2.99E-004
63	2.29E-004
64	8.73E-005
65	-2.96E-005
66	-2.66E-005
67	1.17E-006
68	2.47E-005
69	3.22E-005
70	4.19E-005
71	1.01E-004
72	2.60E-004

ESFORÇO NORMAL

NOMENCLATURA DAS SEÇÕES PARA VERSÃO COMPLETA DO RELATÓRIO



```
#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VmaxHmin                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-54.27	-3.58
2	-3.58	-3.58
3	-3.58	-3.58
4	-3.58	-3.58
5	-3.58	-3.58
6	-3.58	-3.58
7	-3.58	-65.94
8	-64.27	-64.27
9	-62.93	-62.93
10	-61.59	-61.59
11	-60.25	-60.25
12	-58.91	-58.91
13	-57.24	-1.37
14	-1.37	-1.37
15	-1.37	-1.37
16	-1.37	-1.37
17	-1.37	-1.37
18	-1.37	-1.37
19	-1.37	-45.58
20	-47.24	-47.24
21	-48.58	-48.58
22	-49.92	-49.92
23	-51.26	-51.26
24	-52.60	-52.60
25	-54.27	-4.46
26	-4.46	-4.46
27	-4.46	-4.46
28	-4.46	-4.46
29	-4.46	-4.46
30	-4.46	-4.46
31	-4.46	-60.10
32	-58.44	-58.44
33	-57.10	-57.10
34	-55.76	-55.76
35	-54.42	-54.42
36	-53.08	-53.08
37	-51.41	-0.49
38	-0.49	-0.49
39	-0.49	-0.49
40	-0.49	-0.49
41	-0.49	-0.49
42	-0.49	-0.49
43	-0.49	-51.41
44	-53.08	-53.08
45	-54.42	-54.42
46	-55.76	-55.76
47	-57.10	-57.10
48	-58.44	-58.44
49	-60.10	-3.58

	50	-3.58	-3.58
	51	-3.58	-3.58
	52	-3.58	-3.58
	53	-3.58	-3.58
	54	-3.58	-3.58
	55	-3.58	-54.27
	56	-52.60	-52.60
	57	-51.26	-51.26
	58	-49.92	-49.92
	59	-48.58	-48.58
	60	-47.24	-47.24
	61	-45.58	-1.37
	62	-1.37	-1.37
	63	-1.37	-1.37
	64	-1.37	-1.37
	65	-1.37	-1.37
	66	-1.37	-1.37
	67	-1.37	-57.24
	68	-58.91	-58.91
	69	-60.25	-60.25
	70	-61.59	-61.59
	71	-62.93	-62.93
	72	-64.27	-64.27

```
#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VminHmax                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-28.21	-34.46
2	-34.46	-34.46
3	-34.46	-34.46
4	-34.46	-34.46
5	-34.46	-34.46
6	-34.46	-34.46
7	-34.46	-24.52
8	-23.24	-23.24
9	-22.21	-22.21
10	-21.18	-21.18
11	-20.15	-20.15
12	-19.11	-19.11
13	-17.83	-27.07
14	-27.07	-27.07
15	-27.07	-27.07
16	-27.07	-27.07
17	-27.07	-27.07
18	-27.07	-27.07
19	-27.07	-21.52
20	-22.81	-22.81
21	-23.84	-23.84
22	-24.87	-24.87
23	-25.90	-25.90
24	-26.93	-26.93
25	-28.21	-34.44
26	-34.44	-34.44
27	-34.44	-34.44
28	-34.44	-34.44
29	-34.44	-34.44
30	-34.44	-34.44
31	-34.44	-26.37
32	-25.09	-25.09
33	-24.05	-24.05
34	-23.02	-23.02
35	-21.99	-21.99
36	-20.96	-20.96
37	-19.68	-27.09
38	-27.09	-27.09
39	-27.09	-27.09
40	-27.09	-27.09
41	-27.09	-27.09
42	-27.09	-27.09
43	-27.09	-19.68
44	-20.96	-20.96
45	-21.99	-21.99
46	-23.02	-23.02
47	-24.05	-24.05
48	-25.08	-25.08
49	-26.37	-34.46

	50	-34.46	-34.46
	51	-34.46	-34.46
	52	-34.46	-34.46
	53	-34.46	-34.46
	54	-34.46	-34.46
	55	-34.46	-28.21
	56	-26.93	-26.93
	57	-25.90	-25.90
	58	-24.87	-24.87
	59	-23.84	-23.84
	60	-22.81	-22.81
	61	-21.52	-27.07
	62	-27.07	-27.07
	63	-27.07	-27.07
	64	-27.07	-27.07
	65	-27.07	-27.07
	66	-27.07	-27.07
	67	-27.07	-17.83
	68	-19.11	-19.11
	69	-20.15	-20.15
	70	-21.18	-21.18
	71	-22.21	-22.21
	72	-23.24	-23.24

```
#####
#          SOLICITAÇÕES NORMAIS (ELU)          #
#          VmaxHmax                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-55.83	-23.58
2	-23.58	-23.58
3	-23.58	-23.58
4	-23.58	-23.58
5	-23.58	-23.58
6	-23.58	-23.58
7	-23.58	-64.37
8	-62.71	-62.71
9	-61.37	-61.37
10	-60.02	-60.02
11	-58.68	-58.68
12	-57.34	-57.34
13	-55.68	-17.44
14	-17.44	-17.44
15	-17.44	-17.44
16	-17.44	-17.44
17	-17.44	-17.44
18	-17.44	-17.44
19	-17.44	-47.14
20	-48.81	-48.81
21	-50.15	-50.15
22	-51.49	-51.49
23	-52.83	-52.83
24	-54.17	-54.17
25	-55.83	-23.63
26	-23.63	-23.63
27	-23.63	-23.63
28	-23.63	-23.63
29	-23.63	-23.63
30	-23.63	-23.63
31	-23.63	-60.19
32	-58.53	-58.53
33	-57.19	-57.19
34	-55.85	-55.85
35	-54.51	-54.51
36	-53.17	-53.17
37	-51.50	-17.39
38	-17.39	-17.39
39	-17.39	-17.39
40	-17.39	-17.39
41	-17.39	-17.39
42	-17.39	-17.39
43	-17.39	-51.32
44	-52.98	-52.98
45	-54.32	-54.32
46	-55.67	-55.67
47	-57.01	-57.01
48	-58.35	-58.35
49	-60.01	-23.58

	50	-23.58	-23.58
	51	-23.58	-23.58
	52	-23.58	-23.58
	53	-23.58	-23.58
	54	-23.58	-23.58
	55	-23.58	-55.74
	56	-54.08	-54.08
	57	-52.74	-52.74
	58	-51.40	-51.40
	59	-50.06	-50.06
	60	-48.72	-48.72
	61	-47.05	-17.44
	62	-17.44	-17.44
	63	-17.44	-17.44
	64	-17.44	-17.44
	65	-17.44	-17.44
	66	-17.44	-17.44
	67	-17.44	-55.77
	68	-57.43	-57.43
	69	-58.78	-58.78
	70	-60.12	-60.12
	71	-61.46	-61.46
	72	-62.80	-62.80

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmin                                #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-56.03	-2.79
2	-2.79	-2.79
3	-2.79	-2.79
4	-2.79	-2.79
5	-2.79	-2.79
6	-2.79	-2.79
7	-2.79	-64.18
8	-62.51	-62.51
9	-61.17	-61.17
10	-59.83	-59.83
11	-58.49	-58.49
12	-57.15	-57.15
13	-55.49	-2.16
14	-2.16	-2.16
15	-2.16	-2.16
16	-2.16	-2.16
17	-2.16	-2.16
18	-2.16	-2.16
19	-2.16	-47.33
20	-49.00	-49.00
21	-50.34	-50.34
22	-51.68	-51.68
23	-53.02	-53.02
24	-54.36	-54.36
25	-56.03	-3.85
26	-3.85	-3.85
27	-3.85	-3.85
28	-3.85	-3.85
29	-3.85	-3.85
30	-3.85	-3.85
31	-3.85	-58.47
32	-56.81	-56.81
33	-55.47	-55.47
34	-54.13	-54.13
35	-52.79	-52.79
36	-51.45	-51.45
37	-49.78	-1.10
38	-1.10	-1.10
39	-1.10	-1.10
40	-1.10	-1.10
41	-1.10	-1.10
42	-1.10	-1.10
43	-1.10	-53.04
44	-54.70	-54.70
45	-56.04	-56.04
46	-57.39	-57.39
47	-58.73	-58.73
48	-60.07	-60.07
49	-61.73	-3.52

	50	-3.52	-3.52
	51	-3.52	-3.52
	52	-3.52	-3.52
	53	-3.52	-3.52
	54	-3.52	-3.52
	55	-3.52	-51.84
	56	-50.18	-50.18
	57	-48.84	-48.84
	58	-47.50	-47.50
	59	-46.16	-46.16
	60	-44.81	-44.81
	61	-43.15	-1.43
	62	-1.43	-1.43
	63	-1.43	-1.43
	64	-1.43	-1.43
	65	-1.43	-1.43
	66	-1.43	-1.43
	67	-1.43	-59.67
	68	-61.34	-61.34
	69	-62.68	-62.68
	70	-64.02	-64.02
	71	-65.36	-65.36
	72	-66.70	-66.70

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VminHmax                                #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-28.25	-34.44
2	-34.44	-34.44
3	-34.44	-34.44
4	-34.44	-34.44
5	-34.44	-34.44
6	-34.44	-34.44
7	-34.44	-24.48
8	-23.20	-23.20
9	-22.17	-22.17
10	-21.13	-21.13
11	-20.10	-20.10
12	-19.07	-19.07
13	-17.79	-27.09
14	-27.09	-27.09
15	-27.09	-27.09
16	-27.09	-27.09
17	-27.09	-27.09
18	-27.09	-27.09
19	-27.09	-21.57
20	-22.85	-22.85
21	-23.88	-23.88
22	-24.91	-24.91
23	-25.94	-25.94
24	-26.97	-26.97
25	-28.25	-34.42
26	-34.42	-34.42
27	-34.42	-34.42
28	-34.42	-34.42
29	-34.42	-34.42
30	-34.42	-34.42
31	-34.42	-26.19
32	-24.91	-24.91
33	-23.88	-23.88
34	-22.84	-22.84
35	-21.81	-21.81
36	-20.78	-20.78
37	-19.50	-27.11
38	-27.11	-27.11
39	-27.11	-27.11
40	-27.11	-27.11
41	-27.11	-27.11
42	-27.11	-27.11
43	-27.11	-19.86
44	-21.14	-21.14
45	-22.17	-22.17
46	-23.20	-23.20
47	-24.23	-24.23
48	-25.26	-25.26
49	-26.54	-34.42

	50	-34.42	-34.42
	51	-34.42	-34.42
	52	-34.42	-34.42
	53	-34.42	-34.42
	54	-34.42	-34.42
	55	-34.42	-28.46
	56	-27.18	-27.18
	57	-26.15	-26.15
	58	-25.12	-25.12
	59	-24.08	-24.08
	60	-23.05	-23.05
	61	-21.77	-27.11
	62	-27.11	-27.11
	63	-27.11	-27.11
	64	-27.11	-27.11
	65	-27.11	-27.11
	66	-27.11	-27.11
	67	-27.11	-17.59
	68	-18.87	-18.87
	69	-19.90	-19.90
	70	-20.93	-20.93
	71	-21.96	-21.96
	72	-22.99	-22.99

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmax                                #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-57.29	-23.03
2	-23.03	-23.03
3	-23.03	-23.03
4	-23.03	-23.03
5	-23.03	-23.03
6	-23.03	-23.03
7	-23.03	-62.91
8	-61.25	-61.25
9	-59.91	-59.91
10	-58.57	-58.57
11	-57.23	-57.23
12	-55.89	-55.89
13	-54.22	-17.99
14	-17.99	-17.99
15	-17.99	-17.99
16	-17.99	-17.99
17	-17.99	-17.99
18	-17.99	-17.99
19	-17.99	-48.60
20	-50.26	-50.26
21	-51.61	-51.61
22	-52.95	-52.95
23	-54.29	-54.29
24	-55.63	-55.63
25	-57.29	-23.23
26	-23.23	-23.23
27	-23.23	-23.23
28	-23.23	-23.23
29	-23.23	-23.23
30	-23.23	-23.23
31	-23.23	-59.41
32	-57.75	-57.75
33	-56.41	-56.41
34	-55.07	-55.07
35	-53.73	-53.73
36	-52.39	-52.39
37	-50.72	-17.79
38	-17.79	-17.79
39	-17.79	-17.79
40	-17.79	-17.79
41	-17.79	-17.79
42	-17.79	-17.79
43	-17.79	-52.10
44	-53.76	-53.76
45	-55.10	-55.10
46	-56.45	-56.45
47	-57.79	-57.79
48	-59.13	-59.13
49	-60.79	-23.61

	50	-23.61	-23.61
	51	-23.61	-23.61
	52	-23.61	-23.61
	53	-23.61	-23.61
	54	-23.61	-23.61
	55	-23.61	-54.42
	56	-52.76	-52.76
	57	-51.42	-51.42
	58	-50.08	-50.08
	59	-48.74	-48.74
	60	-47.40	-47.40
	61	-45.73	-17.41
	62	-17.41	-17.41
	63	-17.41	-17.41
	64	-17.41	-17.41
	65	-17.41	-17.41
	66	-17.41	-17.41
	67	-17.41	-57.09
	68	-58.75	-58.75
	69	-60.09	-60.09
	70	-61.44	-61.44
	71	-62.78	-62.78
	72	-64.12	-64.12

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VmaxHmin                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-36.57	-12.55
2	-12.55	-12.55
3	-12.55	-12.55
4	-12.55	-12.55
5	-12.55	-12.55
6	-12.55	-12.55
7	-12.55	-42.84
8	-41.56	-41.56
9	-40.53	-40.53
10	-39.49	-39.49
11	-38.46	-38.46
12	-37.43	-37.43
13	-36.15	-7.25
14	-7.25	-7.25
15	-7.25	-7.25
16	-7.25	-7.25
17	-7.25	-7.25
18	-7.25	-7.25
19	-7.25	-29.88
20	-31.17	-31.17
21	-32.20	-32.20
22	-33.23	-33.23
23	-34.26	-34.26
24	-35.29	-35.29
25	-36.57	-12.62
26	-12.62	-12.62
27	-12.62	-12.62
28	-12.62	-12.62
29	-12.62	-12.62
30	-12.62	-12.62
31	-12.62	-39.79
32	-38.51	-38.51
33	-37.48	-37.48
34	-36.45	-36.45
35	-35.42	-35.42
36	-34.39	-34.39
37	-33.10	-7.18
38	-7.18	-7.18
39	-7.18	-7.18
40	-7.18	-7.18
41	-7.18	-7.18
42	-7.18	-7.18
43	-7.18	-32.93
44	-34.21	-34.21
45	-35.24	-35.24
46	-36.27	-36.27
47	-37.31	-37.31
48	-38.34	-38.34
49	-39.62	-12.55

	50	-12.55	-12.55
	51	-12.55	-12.55
	52	-12.55	-12.55
	53	-12.55	-12.55
	54	-12.55	-12.55
	55	-12.55	-36.49
	56	-35.20	-35.20
	57	-34.17	-34.17
	58	-33.14	-33.14
	59	-32.11	-32.11
	60	-31.08	-31.08
	61	-29.80	-7.25
	62	-7.25	-7.25
	63	-7.25	-7.25
	64	-7.25	-7.25
	65	-7.25	-7.25
	66	-7.25	-7.25
	67	-7.25	-36.24
	68	-37.52	-37.52
	69	-38.55	-38.55
	70	-39.58	-39.58
	71	-40.61	-40.61
	72	-41.64	-41.64

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmax                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-26.26	-23.72
2	-23.72	-23.72
3	-23.72	-23.72
4	-23.72	-23.72
5	-23.72	-23.72
6	-23.72	-23.72
7	-23.72	-26.48
8	-25.20	-25.20
9	-24.16	-24.16
10	-23.13	-23.13
11	-22.10	-22.10
12	-21.07	-21.07
13	-19.79	-17.41
14	-17.41	-17.41
15	-17.41	-17.41
16	-17.41	-17.41
17	-17.41	-17.41
18	-17.41	-17.41
19	-17.41	-19.57
20	-20.85	-20.85
21	-21.88	-21.88
22	-22.91	-22.91
23	-23.94	-23.94
24	-24.97	-24.97
25	-26.26	-23.73
26	-23.73	-23.73
27	-23.73	-23.73
28	-23.73	-23.73
29	-23.73	-23.73
30	-23.73	-23.73
31	-23.73	-26.37
32	-25.09	-25.09
33	-24.05	-24.05
34	-23.02	-23.02
35	-21.99	-21.99
36	-20.96	-20.96
37	-19.68	-17.40
38	-17.40	-17.40
39	-17.40	-17.40
40	-17.40	-17.40
41	-17.40	-17.40
42	-17.40	-17.40
43	-17.40	-19.68
44	-20.96	-20.96
45	-21.99	-21.99
46	-23.02	-23.02
47	-24.05	-24.05
48	-25.08	-25.08
49	-26.37	-23.72

	50	-23.72	-23.72
	51	-23.72	-23.72
	52	-23.72	-23.72
	53	-23.72	-23.72
	54	-23.72	-23.72
	55	-23.72	-26.26
	56	-24.97	-24.97
	57	-23.94	-23.94
	58	-22.91	-22.91
	59	-21.88	-21.88
	60	-20.85	-20.85
	61	-19.57	-17.41
	62	-17.41	-17.41
	63	-17.41	-17.41
	64	-17.41	-17.41
	65	-17.41	-17.41
	66	-17.41	-17.41
	67	-17.41	-19.79
	68	-21.07	-21.07
	69	-22.10	-22.10
	70	-23.13	-23.13
	71	-24.16	-24.16
	72	-25.20	-25.20

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VmaxHmax                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-36.95	-16.13
2	-16.13	-16.13
3	-16.13	-16.13
4	-16.13	-16.13
5	-16.13	-16.13
6	-16.13	-16.13
7	-16.13	-42.46
8	-41.18	-41.18
9	-40.15	-40.15
10	-39.12	-39.12
11	-38.08	-38.08
12	-37.05	-37.05
13	-35.77	-11.29
14	-11.29	-11.29
15	-11.29	-11.29
16	-11.29	-11.29
17	-11.29	-11.29
18	-11.29	-11.29
19	-11.29	-30.26
20	-31.54	-31.54
21	-32.58	-32.58
22	-33.61	-33.61
23	-34.64	-34.64
24	-35.67	-35.67
25	-36.95	-16.17
26	-16.17	-16.17
27	-16.17	-16.17
28	-16.17	-16.17
29	-16.17	-16.17
30	-16.17	-16.17
31	-16.17	-39.76
32	-38.48	-38.48
33	-37.45	-37.45
34	-36.42	-36.42
35	-35.39	-35.39
36	-34.35	-34.35
37	-33.07	-11.25
38	-11.25	-11.25
39	-11.25	-11.25
40	-11.25	-11.25
41	-11.25	-11.25
42	-11.25	-11.25
43	-11.25	-32.96
44	-34.24	-34.24
45	-35.27	-35.27
46	-36.31	-36.31
47	-37.34	-37.34
48	-38.37	-38.37
49	-39.65	-16.13

	50	-16.13	-16.13
	51	-16.13	-16.13
	52	-16.13	-16.13
	53	-16.13	-16.13
	54	-16.13	-16.13
	55	-16.13	-36.89
	56	-35.61	-35.61
	57	-34.58	-34.58
	58	-33.55	-33.55
	59	-32.52	-32.52
	60	-31.49	-31.49
	61	-30.21	-11.29
	62	-11.29	-11.29
	63	-11.29	-11.29
	64	-11.29	-11.29
	65	-11.29	-11.29
	66	-11.29	-11.29
	67	-11.29	-35.83
	68	-37.11	-37.11
	69	-38.14	-38.14
	70	-39.17	-39.17
	71	-40.20	-40.20
	72	-41.23	-41.23

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmin                             #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-24.72	-12.58
2	-12.58	-12.58
3	-12.58	-12.58
4	-12.58	-12.58
5	-12.58	-12.58
6	-12.58	-12.58
7	-12.58	-28.02
8	-26.73	-26.73
9	-25.70	-25.70
10	-24.67	-24.67
11	-23.64	-23.64
12	-22.61	-22.61
13	-21.33	-7.22
14	-7.22	-7.22
15	-7.22	-7.22
16	-7.22	-7.22
17	-7.22	-7.22
18	-7.22	-7.22
19	-7.22	-18.03
20	-19.31	-19.31
21	-20.34	-20.34
22	-21.37	-21.37
23	-22.40	-22.40
24	-23.44	-23.44
25	-24.72	-12.61
26	-12.61	-12.61
27	-12.61	-12.61
28	-12.61	-12.61
29	-12.61	-12.61
30	-12.61	-12.61
31	-12.61	-26.39
32	-25.11	-25.11
33	-24.07	-24.07
34	-23.04	-23.04
35	-22.01	-22.01
36	-20.98	-20.98
37	-19.70	-7.19
38	-7.19	-7.19
39	-7.19	-7.19
40	-7.19	-7.19
41	-7.19	-7.19
42	-7.19	-7.19
43	-7.19	-19.66
44	-20.94	-20.94
45	-21.97	-21.97
46	-23.00	-23.00
47	-24.03	-24.03
48	-25.06	-25.06
49	-26.35	-12.58

	50	-12.58	-12.58
	51	-12.58	-12.58
	52	-12.58	-12.58
	53	-12.58	-12.58
	54	-12.58	-12.58
	55	-12.58	-24.70
	56	-23.41	-23.41
	57	-22.38	-22.38
	58	-21.35	-21.35
	59	-20.32	-20.32
	60	-19.29	-19.29
	61	-18.01	-7.22
	62	-7.22	-7.22
	63	-7.22	-7.22
	64	-7.22	-7.22
	65	-7.22	-7.22
	66	-7.22	-7.22
	67	-7.22	-21.35
	68	-22.63	-22.63
	69	-23.66	-23.66
	70	-24.69	-24.69
	71	-25.72	-25.72
	72	-26.76	-26.76

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmin                                   #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-32.13	-12.56
2	-12.56	-12.56
3	-12.56	-12.56
4	-12.56	-12.56
5	-12.56	-12.56
6	-12.56	-12.56
7	-12.56	-37.28
8	-36.00	-36.00
9	-34.97	-34.97
10	-33.94	-33.94
11	-32.90	-32.90
12	-31.87	-31.87
13	-30.59	-7.24
14	-7.24	-7.24
15	-7.24	-7.24
16	-7.24	-7.24
17	-7.24	-7.24
18	-7.24	-7.24
19	-7.24	-25.44
20	-26.72	-26.72
21	-27.75	-27.75
22	-28.78	-28.78
23	-29.81	-29.81
24	-30.85	-30.85
25	-32.13	-12.61
26	-12.61	-12.61
27	-12.61	-12.61
28	-12.61	-12.61
29	-12.61	-12.61
30	-12.61	-12.61
31	-12.61	-34.77
32	-33.48	-33.48
33	-32.45	-32.45
34	-31.42	-31.42
35	-30.39	-30.39
36	-29.36	-29.36
37	-28.08	-7.19
38	-7.19	-7.19
39	-7.19	-7.19
40	-7.19	-7.19
41	-7.19	-7.19
42	-7.19	-7.19
43	-7.19	-27.95
44	-29.23	-29.23
45	-30.27	-30.27
46	-31.30	-31.30
47	-32.33	-32.33
48	-33.36	-33.36
49	-34.64	-12.56

	50	-12.56	-12.56
	51	-12.56	-12.56
	52	-12.56	-12.56
	53	-12.56	-12.56
	54	-12.56	-12.56
	55	-12.56	-32.06
	56	-30.78	-30.78
	57	-29.75	-29.75
	58	-28.72	-28.72
	59	-27.69	-27.69
	60	-26.66	-26.66
	61	-25.38	-7.24
	62	-7.24	-7.24
	63	-7.24	-7.24
	64	-7.24	-7.24
	65	-7.24	-7.24
	66	-7.24	-7.24
	67	-7.24	-30.65
	68	-31.94	-31.94
	69	-32.97	-32.97
	70	-34.00	-34.00
	71	-35.03	-35.03
	72	-36.06	-36.06

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VminHmax                                  #
#####
```

ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-25.87	-21.69
2	-21.69	-21.69
3	-21.69	-21.69
4	-21.69	-21.69
5	-21.69	-21.69
6	-21.69	-21.69
7	-21.69	-26.86
8	-25.58	-25.58
9	-24.55	-24.55
10	-23.52	-23.52
11	-22.48	-22.48
12	-21.45	-21.45
13	-20.17	-15.15
14	-15.15	-15.15
15	-15.15	-15.15
16	-15.15	-15.15
17	-15.15	-15.15
18	-15.15	-15.15
19	-15.15	-19.19
20	-20.47	-20.47
21	-21.50	-21.50
22	-22.53	-22.53
23	-23.56	-23.56
24	-24.59	-24.59
25	-25.87	-21.70
26	-21.70	-21.70
27	-21.70	-21.70
28	-21.70	-21.70
29	-21.70	-21.70
30	-21.70	-21.70
31	-21.70	-26.37
32	-25.09	-25.09
33	-24.05	-24.05
34	-23.02	-23.02
35	-21.99	-21.99
36	-20.96	-20.96
37	-19.68	-15.15
38	-15.15	-15.15
39	-15.15	-15.15
40	-15.15	-15.15
41	-15.15	-15.15
42	-15.15	-15.15
43	-15.15	-19.68
44	-20.96	-20.96
45	-21.99	-21.99
46	-23.02	-23.02
47	-24.05	-24.05
48	-25.08	-25.08
49	-26.37	-21.69

	50	-21.69	-21.69
	51	-21.69	-21.69
	52	-21.69	-21.69
	53	-21.69	-21.69
	54	-21.69	-21.69
	55	-21.69	-25.87
	56	-24.59	-24.59
	57	-23.56	-23.56
	58	-22.53	-22.53
	59	-21.50	-21.50
	60	-20.47	-20.47
	61	-19.19	-15.15
	62	-15.15	-15.15
	63	-15.15	-15.15
	64	-15.15	-15.15
	65	-15.15	-15.15
	66	-15.15	-15.15
	67	-15.15	-20.17
	68	-21.45	-21.45
	69	-22.48	-22.48
	70	-23.52	-23.52
	71	-24.55	-24.55
	72	-25.58	-25.58

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmax                                  #
#####
```

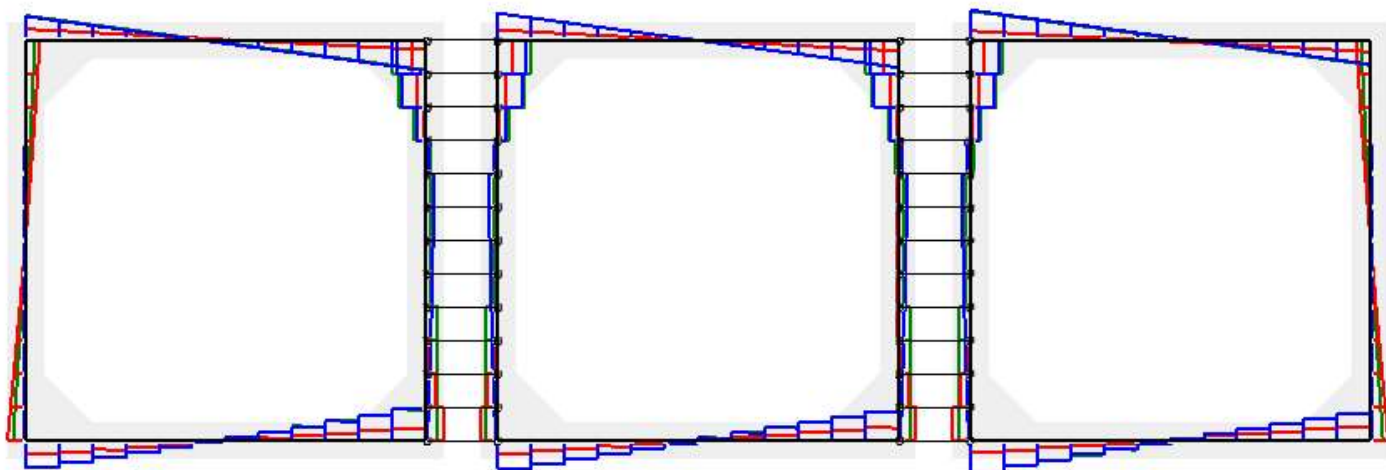
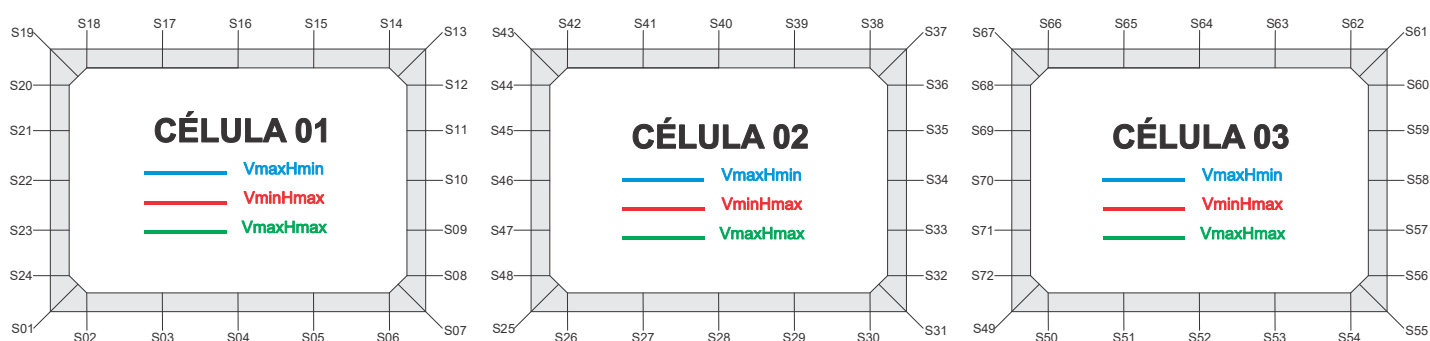
ESFORÇO NORMAL NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	-32.36	-14.80
2	-14.80	-14.80
3	-14.80	-14.80
4	-14.80	-14.80
5	-14.80	-14.80
6	-14.80	-14.80
7	-14.80	-37.04
8	-35.76	-35.76
9	-34.73	-34.73
10	-33.70	-33.70
11	-32.67	-32.67
12	-31.64	-31.64
13	-30.36	-9.76
14	-9.76	-9.76
15	-9.76	-9.76
16	-9.76	-9.76
17	-9.76	-9.76
18	-9.76	-9.76
19	-9.76	-25.68
20	-26.96	-26.96
21	-27.99	-27.99
22	-29.02	-29.02
23	-30.05	-30.05
24	-31.08	-31.08
25	-32.36	-14.83
26	-14.83	-14.83
27	-14.83	-14.83
28	-14.83	-14.83
29	-14.83	-14.83
30	-14.83	-14.83
31	-14.83	-34.75
32	-33.46	-33.46
33	-32.43	-32.43
34	-31.40	-31.40
35	-30.37	-30.37
36	-29.34	-29.34
37	-28.06	-9.73
38	-9.73	-9.73
39	-9.73	-9.73
40	-9.73	-9.73
41	-9.73	-9.73
42	-9.73	-9.73
43	-9.73	-27.97
44	-29.25	-29.25
45	-30.29	-30.29
46	-31.32	-31.32
47	-32.35	-32.35
48	-33.38	-33.38
49	-34.66	-14.80

	50	-14.80	-14.80
	51	-14.80	-14.80
	52	-14.80	-14.80
	53	-14.80	-14.80
	54	-14.80	-14.80
	55	-14.80	-32.32
	56	-31.04	-31.04
	57	-30.01	-30.01
	58	-28.98	-28.98
	59	-27.95	-27.95
	60	-26.91	-26.91
	61	-25.63	-9.76
	62	-9.76	-9.76
	63	-9.76	-9.76
	64	-9.76	-9.76
	65	-9.76	-9.76
	66	-9.76	-9.76
	67	-9.76	-30.40
	68	-31.68	-31.68
	69	-32.71	-32.71
	70	-33.74	-33.74
	71	-34.77	-34.77
	72	-35.80	-35.80

ESFORÇO CORTANTE

NOMENCLATURA DAS SEÇÕES PARA VERSÃO COMPLETA DO RELATÓRIO



```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VmaxHmin #
#####
```

 ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	3.58	-49.32
2	-41.12	-31.29
3	-22.82	-12.96
4	-4.31	5.90
5	15.11	26.10
6	36.27	48.34
7	59.33	-3.58
8	-8.11	-8.11
9	-11.83	-11.83
10	-14.71	-14.71
11	-16.78	-7.44
12	14.53	45.77
13	53.30	-57.24
14	-39.89	-39.89
15	-22.86	-22.86
16	-5.83	-5.83
17	11.19	11.19
18	28.22	28.22
19	45.58	-1.37
20	0.28	0.28
21	1.60	1.60
22	2.59	2.59
23	3.25	3.25
24	3.58	3.58
25	3.58	-54.38
26	-44.86	-33.93
27	-24.60	-14.13
28	-5.14	5.14
29	14.13	24.60
30	33.93	44.86
31	54.38	-4.46
32	-8.99	-8.99
33	-12.71	-12.71
34	-15.59	-15.59
35	-17.66	-8.32
36	13.65	44.89
37	52.42	-51.41
38	-34.06	-34.06
39	-17.03	-17.03
40	0.00	0.00
41	17.03	17.03
42	34.06	34.06
43	51.41	-52.42
44	-44.89	-13.65
45	8.32	17.66
46	15.59	15.59
47	12.71	12.71
48	8.99	8.99
49	4.46	-59.33

	50	-48.34	-36.27
	51	-26.10	-15.11
	52	-5.90	4.31
	53	12.96	22.82
	54	31.29	41.12
	55	49.32	-3.58
	56	-3.58	-3.58
	57	-3.25	-3.25
	58	-2.59	-2.59
	59	-1.60	-1.60
	60	-0.28	-0.28
	61	1.37	-45.58
	62	-28.22	-28.22
	63	-11.19	-11.19
	64	5.83	5.83
	65	22.86	22.86
	66	39.89	39.89
	67	57.24	-53.30
	68	-45.77	-14.53
	69	7.44	16.78
	70	14.71	14.71
	71	11.83	11.83
	72	8.11	8.11

```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VminHmax #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	34.46	-25.73
2	-22.03	-17.03
3	-13.07	-8.11
4	-4.21	0.71
5	4.59	9.51
6	13.42	18.37
7	22.04	-34.46
8	-20.23	-4.92
9	0.06	0.06
10	0.06	0.06
11	0.06	0.06
12	3.05	14.21
13	25.97	-17.83
14	-11.11	-11.11
15	-4.63	-4.63
16	1.85	1.85
17	8.32	8.32
18	14.80	14.80
19	21.52	-27.07
20	-18.82	-18.82
21	-9.77	-9.77
22	0.08	0.08
23	10.73	10.73
24	22.20	22.20
25	34.46	-23.85
26	-20.11	-15.12
27	-11.20	-6.29
28	-2.44	2.44
29	6.29	11.20
30	15.12	20.11
31	23.85	-34.44
32	-20.29	-5.05
33	0.22	0.22
34	0.22	0.22
35	0.22	-0.93
36	3.26	14.43
37	26.10	-19.68
38	-12.95	-12.95
39	-6.48	-6.48
40	0.00	0.00
41	6.48	6.48
42	12.95	12.95
43	19.68	-25.99
44	-14.22	-3.06
45	-0.08	-0.08
46	-0.08	-0.08
47	-0.08	-0.08
48	4.90	20.21
49	34.44	-22.04

	50	-18.37	-13.42
	51	-9.51	-4.59
	52	-0.71	4.21
	53	8.11	13.07
	54	17.03	22.03
	55	25.73	-34.46
	56	-22.20	-22.20
	57	-10.73	-10.73
	58	-0.08	-0.08
	59	9.77	9.77
	60	18.82	18.82
	61	27.07	-21.52
	62	-14.80	-14.80
	63	-8.32	-8.32
	64	-1.85	-1.85
	65	4.63	4.63
	66	11.11	11.11
	67	17.83	-26.08
	68	-14.42	-3.24
	69	0.94	-0.20
	70	-0.20	-0.20
	71	-0.20	-0.20
	72	5.07	20.31

```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VmaxHmax #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	23.58	-50.52
2	-41.65	-31.21
3	-22.21	-11.93
4	-2.98	7.39
5	16.59	27.35
6	37.06	48.42
7	58.41	-23.58
8	-23.58	-23.58
9	-23.58	-8.19
10	-8.19	-8.19
11	-8.19	-8.19
12	21.30	50.77
13	62.20	-55.68
14	-38.32	-38.32
15	-21.30	-21.30
16	-4.27	-4.27
17	12.76	12.76
18	29.79	29.79
19	47.14	-17.44
20	-11.95	-11.95
21	-5.91	-5.91
22	0.65	0.65
23	7.76	7.76
24	15.40	15.40
25	23.58	-54.43
26	-45.06	-34.18
27	-24.81	-14.24
28	-5.11	5.32
29	14.45	25.02
30	34.39	45.26
31	54.61	-23.63
32	-23.63	-23.63
33	-23.63	-10.25
34	-10.25	-10.25
35	-10.25	5.21
36	18.96	48.38
37	61.16	-51.50
38	-34.15	-34.15
39	-17.12	-17.12
40	-0.09	-0.09
41	16.94	16.94
42	33.97	33.97
43	51.32	-62.14
44	-50.71	-21.24
45	8.25	8.25
46	8.25	8.25
47	8.25	23.63
48	23.63	23.63
49	23.63	-58.50

	50	-48.53	-37.17
	51	-27.46	-16.70
	52	-7.50	2.87
	53	11.82	22.11
	54	31.12	41.56
	55	50.43	-23.58
	56	-15.40	-15.40
	57	-7.76	-7.76
	58	-0.66	-0.66
	59	5.91	5.91
	60	11.95	11.95
	61	17.44	-47.05
	62	-29.70	-29.70
	63	-12.67	-12.67
	64	4.36	4.36
	65	21.39	21.39
	66	38.42	38.42
	67	55.77	-61.21
	68	-48.43	-19.02
	69	-5.27	10.20
	70	10.20	10.20
	71	10.20	23.58
	72	23.58	23.58

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmin                                  #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	2.79	-51.05
2	-42.82	-33.00
3	-24.56	-14.76
4	-6.19	3.95
5	13.10	24.04
6	34.21	46.34
7	57.46	-2.79
8	-7.33	-7.33
9	-11.04	-11.04
10	-13.93	-13.93
11	-15.99	-15.99
12	21.94	47.77
13	57.02	-55.49
14	-38.13	-38.13
15	-21.10	-21.10
16	-4.08	-4.08
17	12.95	12.95
18	29.98	29.98
19	47.33	-2.16
20	-0.51	-0.51
21	0.81	0.81
22	1.80	1.80
23	2.46	2.46
24	2.79	2.79
25	2.79	-55.99
26	-46.45	-35.53
27	-26.22	-15.80
28	-6.88	3.34
29	12.27	22.70
30	32.04	43.02
31	52.66	-3.85
32	-8.39	-8.39
33	-12.10	-12.10
34	-14.99	-14.99
35	-17.05	0.37
36	12.64	41.45
37	53.33	-49.78
38	-32.43	-32.43
39	-15.40	-15.40
40	1.63	1.63
41	18.66	18.66
42	35.69	35.69
43	53.04	-55.96
44	-46.71	-20.88
45	17.05	17.05
46	14.99	14.99
47	12.10	12.10
48	8.39	8.39
49	3.85	-61.65

	50	-50.52	-38.34
	51	-28.12	-17.12
	52	-7.94	2.21
	53	10.77	20.54
	54	28.93	38.70
	55	46.88	-3.52
	56	-3.52	-3.52
	57	-3.19	-3.19
	58	-2.53	-2.53
	59	-1.54	-1.54
	60	-0.22	-0.22
	61	1.43	-43.15
	62	-25.80	-25.80
	63	-8.77	-8.77
	64	8.26	8.26
	65	25.29	25.29
	66	42.32	42.32
	67	59.67	-53.66
	68	-41.78	-12.97
	69	-0.70	16.72
	70	14.66	14.66
	71	11.77	11.77
	72	8.06	8.06

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VminHmax                                #
#####
```

 ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	34.44	-25.77
2	-22.07	-17.07
3	-13.12	-8.16
4	-4.25	0.66
5	4.54	9.46
6	13.37	18.32
7	22.00	-34.44
8	-20.13	-3.84
9	0.06	0.06
10	0.06	0.06
11	0.06	0.06
12	1.85	13.47
13	26.97	-17.79
14	-11.06	-11.06
15	-4.59	-4.59
16	1.89	1.89
17	8.36	8.36
18	14.84	14.84
19	21.57	-27.09
20	-18.84	-18.84
21	-9.79	-9.79
22	0.06	0.06
23	10.72	10.72
24	22.18	22.18
25	34.44	-24.02
26	-20.27	-15.28
27	-11.36	-6.45
28	-2.60	2.27
29	6.11	11.02
30	14.93	19.92
31	23.66	-34.42
32	-20.17	-4.02
33	0.23	0.23
34	0.23	0.23
35	0.23	-1.14
36	2.22	13.73
37	27.08	-19.50
38	-12.77	-12.77
39	-6.30	-6.30
40	0.18	0.18
41	6.65	6.65
42	13.13	13.13
43	19.86	-26.99
44	-13.49	-1.87
45	-0.08	-0.08
46	-0.08	-0.08
47	-0.08	-0.08
48	3.81	20.10
49	34.42	-21.80

	50	-18.13	-13.18
	51	-9.28	-4.35
	52	-0.47	4.45
	53	8.35	13.32
	54	17.28	22.28
	55	25.98	-34.42
	56	-22.15	-22.15
	57	-10.69	-10.69
	58	-0.04	-0.04
	59	9.82	9.82
	60	18.87	18.87
	61	27.11	-21.77
	62	-15.05	-15.05
	63	-8.57	-8.57
	64	-2.09	-2.09
	65	4.38	4.38
	66	10.86	10.86
	67	17.59	-27.08
	68	-13.73	-2.22
	69	1.14	-0.23
	70	-0.23	-0.23
	71	-0.23	-0.23
	72	4.02	20.17

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmax                                #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	23.03	-51.98
2	-43.12	-32.72
3	-23.77	-13.54
4	-4.66	5.65
5	14.80	25.54
6	35.27	46.71
7	56.84	-23.03
8	-23.03	-23.03
9	-9.75	-9.75
10	-9.75	-9.75
11	-9.75	-9.75
12	22.10	48.81
13	64.45	-54.22
14	-36.87	-36.87
15	-19.84	-19.84
16	-2.81	-2.81
17	14.22	14.22
18	31.25	31.25
19	48.60	-17.99
20	-12.49	-12.49
21	-6.46	-6.46
22	0.11	0.11
23	7.21	7.21
24	14.85	14.85
25	23.03	-55.17
26	-45.77	-34.89
27	-25.54	-15.01
28	-5.94	4.44
29	13.51	24.04
30	33.41	44.32
31	53.76	-23.23
32	-23.23	-23.23
33	-11.84	-11.84
34	-11.84	-11.84
35	-11.84	10.11
36	15.86	45.23
37	63.64	-50.72
38	-33.37	-33.37
39	-16.34	-16.34
40	0.69	0.69
41	17.72	17.72
42	34.75	34.75
43	52.10	-64.25
44	-48.61	-21.90
45	9.95	9.95
46	9.95	9.95
47	9.95	9.95
48	23.23	23.23
49	23.23	-59.73

	50	-49.61	-38.15
	51	-28.39	-17.60
	52	-8.43	1.90
	53	10.79	21.00
	54	29.93	40.30
	55	49.12	-23.61
	56	-15.43	-15.43
	57	-7.79	-7.79
	58	-0.68	-0.68
	59	5.88	5.88
	60	11.92	11.92
	61	17.41	-45.73
	62	-28.38	-28.38
	63	-11.35	-11.35
	64	5.68	5.68
	65	22.71	22.71
	66	39.74	39.74
	67	57.09	-63.26
	68	-44.85	-15.48
	69	-9.73	12.22
	70	12.22	12.22
	71	12.22	12.22
	72	23.61	23.61

```
#####
# VERIFICAÇÃO DA FADIGA (ELS) #
# VmaxHmin #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	12.55	-33.05
2	-27.36	-20.45
3	-14.63	-7.82
4	-2.01	4.89
5	10.89	18.10
6	24.50	32.16
7	38.78	-12.55
8	-12.55	-12.55
9	-12.55	-7.64
10	-7.64	-7.64
11	-7.64	-7.64
12	15.65	33.54
13	38.82	-36.15
14	-24.98	-24.98
15	-14.06	-14.06
16	-3.13	-3.13
17	7.79	7.79
18	18.71	18.71
19	29.88	-7.25
20	-5.19	-5.19
21	-2.63	-2.63
22	0.42	0.42
23	3.97	3.97
24	8.01	8.01
25	12.55	-35.87
26	-29.75	-22.48
27	-16.36	-9.31
28	-3.37	3.58
29	9.52	16.56
30	22.68	29.94
31	36.05	-12.62
32	-12.62	-12.62
33	-12.62	-9.61
34	-9.61	-9.61
35	-9.61	5.13
36	13.42	31.25
37	37.81	-33.10
38	-21.93	-21.93
39	-11.01	-11.01
40	-0.09	-0.09
41	10.84	10.84
42	21.76	21.76
43	32.93	-38.75
44	-33.48	-15.59
45	7.70	7.70
46	7.70	7.70
47	7.70	12.62
48	12.62	12.62
49	12.62	-38.87

	50	-32.26	-24.60
	51	-18.21	-10.99
	52	-4.99	1.91
	53	7.72	14.54
	54	20.36	27.27
	55	32.97	-12.55
	56	-8.02	-8.02
	57	-3.97	-3.97
	58	-0.43	-0.43
	59	2.63	2.63
	60	5.18	5.18
	61	7.25	-29.80
	62	-18.63	-18.63
	63	-7.70	-7.70
	64	3.22	3.22
	65	14.14	14.14
	66	25.06	25.06
	67	36.24	-37.87
	68	-31.31	-13.48
	69	-5.19	9.55
	70	9.55	9.55
	71	9.55	12.55
	72	12.55	12.55

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmax                             #
#####
```

 ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	23.72	-23.75
2	-20.03	-15.05
3	-11.14	-6.23
4	-2.38	2.50
5	6.35	11.27
6	15.20	20.20
7	23.95	-23.72
8	-23.72	-13.41
9	-1.40	0.05
10	0.05	0.05
11	0.05	0.05
12	4.67	16.97
13	25.82	-19.79
14	-13.06	-13.06
15	-6.59	-6.59
16	-0.11	-0.11
17	6.37	6.37
18	12.84	12.84
19	19.57	-17.41
20	-12.15	-12.15
21	-6.25	-6.25
22	0.29	0.29
23	7.46	7.46
24	15.27	15.27
25	23.72	-23.85
26	-20.12	-15.13
27	-11.21	-6.29
28	-2.44	2.44
29	6.29	11.21
30	15.13	20.12
31	23.85	-23.73
32	-23.73	-13.48
33	-1.53	0.19
34	0.19	0.19
35	0.19	-0.69
36	4.78	17.10
37	25.89	-19.68
38	-12.95	-12.95
39	-6.48	-6.48
40	0.00	0.00
41	6.48	6.48
42	12.95	12.95
43	19.68	-25.81
44	-16.96	-4.67
45	-0.04	-0.04
46	-0.04	-0.04
47	-0.04	1.40
48	13.42	23.73
49	23.73	-23.95

	50	-20.20	-15.20
	51	-11.27	-6.35
	52	-2.50	2.38
	53	6.23	11.14
	54	15.05	20.03
	55	23.75	-23.72
	56	-15.27	-15.27
	57	-7.46	-7.46
	58	-0.29	-0.29
	59	6.25	6.25
	60	12.15	12.15
	61	17.41	-19.57
	62	-12.84	-12.84
	63	-6.37	-6.37
	64	0.11	0.11
	65	6.59	6.59
	66	13.06	13.06
	67	19.79	-25.90
	68	-17.11	-4.79
	69	0.69	-0.20
	70	-0.20	-0.20
	71	-0.20	1.52
	72	13.47	23.72

```
#####
# VERIFICAÇÃO DA FADIGA (ELS) #
# VmaxHmax #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	16.13	-33.39
2	-27.62	-20.64
3	-14.74	-7.86
4	-2.01	4.93
5	10.93	18.12
6	24.46	32.02
7	38.49	-16.13
8	-16.13	-16.13
9	-16.13	-4.99
10	-4.99	-4.99
11	-4.99	-4.99
12	13.50	32.55
13	40.01	-35.77
14	-24.60	-24.60
15	-13.68	-13.68
16	-2.75	-2.75
17	8.17	8.17
18	19.09	19.09
19	30.26	-11.29
20	-7.78	-7.78
21	-3.85	-3.85
22	0.51	0.51
23	5.29	5.29
24	10.50	10.50
25	16.13	-35.92
26	-29.84	-22.58
27	-16.45	-9.39
28	-3.42	3.55
29	9.52	16.58
30	22.71	29.97
31	36.04	-16.17
32	-16.17	-16.17
33	-16.17	-6.24
34	-6.24	-6.24
35	-6.24	3.16
36	12.08	31.09
37	39.37	-33.07
38	-21.90	-21.90
39	-10.98	-10.98
40	-0.06	-0.06
41	10.87	10.87
42	21.79	21.79
43	32.96	-39.97
44	-32.51	-13.46
45	5.03	5.03
46	5.03	5.03
47	5.03	16.17
48	16.17	16.17
49	16.17	-38.55

	50	-32.09	-24.53
	51	-18.19	-11.00
	52	-4.99	1.94
	53	7.80	14.68
	54	20.58	27.57
	55	33.34	-16.13
	56	-10.50	-10.50
	57	-5.29	-5.29
	58	-0.51	-0.51
	59	3.85	3.85
	60	7.78	7.78
	61	11.29	-30.21
	62	-19.03	-19.03
	63	-8.11	-8.11
	64	2.81	2.81
	65	13.73	13.73
	66	24.66	24.66
	67	35.83	-39.40
	68	-31.13	-12.11
	69	-3.20	6.20
	70	6.20	6.20
	71	6.20	16.13
	72	16.13	16.13

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmin                             #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	12.58	-22.24
2	-18.60	-13.73
3	-9.94	-5.15
4	-1.40	3.41
5	7.24	12.19
6	16.20	21.36
7	25.34	-12.58
8	-12.58	-12.58
9	-12.58	-1.91
10	-1.91	-1.91
11	-1.91	-1.91
12	7.33	19.17
13	24.12	-21.33
14	-14.60	-14.60
15	-8.13	-8.13
16	-1.65	-1.65
17	4.83	4.83
18	11.30	11.30
19	18.03	-7.22
20	-5.15	-5.15
21	-2.60	-2.60
22	0.46	0.46
23	4.00	4.00
24	8.05	8.05
25	12.58	-23.79
26	-20.01	-15.01
27	-11.10	-6.21
28	-2.39	2.44
29	6.26	11.15
30	15.06	20.06
31	23.83	-12.61
32	-12.61	-12.61
33	-12.61	-2.39
34	-2.39	-2.39
35	-2.39	1.14
36	6.79	18.61
37	23.87	-19.70
38	-12.97	-12.97
39	-6.50	-6.50
40	-0.02	-0.02
41	6.46	6.46
42	12.93	12.93
43	19.66	-24.09
44	-19.15	-7.31
45	1.93	1.93
46	1.93	1.93
47	1.93	12.61
48	12.61	12.61
49	12.61	-25.36

	50	-21.39	-16.23
	51	-12.21	-7.27
	52	-3.44	1.37
	53	5.13	9.92
	54	13.71	18.58
	55	22.22	-12.58
	56	-8.05	-8.05
	57	-4.00	-4.00
	58	-0.46	-0.46
	59	2.60	2.60
	60	5.15	5.15
	61	7.22	-18.01
	62	-11.28	-11.28
	63	-4.81	-4.81
	64	1.67	1.67
	65	8.15	8.15
	66	14.62	14.62
	67	21.35	-23.89
	68	-18.63	-6.81
	69	-1.16	2.37
	70	2.37	2.37
	71	2.37	12.58
	72	12.58	12.58

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmin                                   #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	12.56	-29.00
2	-24.08	-17.93
3	-12.87	-6.82
4	-1.78	4.33
5	9.52	15.88
6	21.39	28.11
7	33.74	-12.56
8	-12.56	-12.56
9	-12.56	-5.49
10	-5.49	-5.49
11	-5.49	-5.49
12	12.53	28.15
13	33.30	-30.59
14	-21.09	-21.09
15	-11.83	-11.83
16	-2.58	-2.58
17	6.68	6.68
18	15.93	15.93
19	25.44	-7.24
20	-5.17	-5.17
21	-2.62	-2.62
22	0.44	0.44
23	3.98	3.98
24	8.03	8.03
25	12.56	-31.34
26	-26.10	-19.68
27	-14.38	-8.15
28	-3.00	3.15
29	8.29	14.53
30	19.82	26.24
31	31.47	-12.61
32	-12.61	-12.61
33	-12.61	-6.90
34	-6.90	-6.90
35	-6.90	3.63
36	10.93	26.51
37	32.58	-28.08
38	-18.57	-18.57
39	-9.32	-9.32
40	-0.06	-0.06
41	9.19	9.19
42	18.45	18.45
43	27.95	-33.25
44	-28.10	-12.48
45	5.54	5.54
46	5.54	5.54
47	5.54	12.61
48	12.61	12.61
49	12.61	-33.80

	50	-28.18	-21.46
	51	-15.96	-9.60
	52	-4.41	1.71
	53	6.75	12.81
	54	17.87	24.01
	55	28.94	-12.56
	56	-8.03	-8.03
	57	-3.98	-3.98
	58	-0.44	-0.44
	59	2.62	2.62
	60	5.17	5.17
	61	7.24	-25.38
	62	-15.87	-15.87
	63	-6.62	-6.62
	64	2.64	2.64
	65	11.89	11.89
	66	21.15	21.15
	67	30.65	-32.63
	68	-26.56	-10.98
	69	-3.68	6.85
	70	6.85	6.85
	71	6.85	12.56
	72	12.56	12.56

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VminHmax                                  #
#####
```

ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	21.69	-23.36
2	-19.64	-14.67
3	-10.77	-5.88
4	-2.04	2.82
5	6.67	11.59
6	15.53	20.55
7	24.32	-21.69
8	-21.69	-16.45
9	-2.70	0.08
10	0.08	0.08
11	0.08	0.08
12	4.98	17.47
13	25.64	-20.17
14	-13.45	-13.45
15	-6.97	-6.97
16	-0.49	-0.49
17	5.98	5.98
18	12.46	12.46
19	19.19	-15.15
20	-10.70	-10.70
21	-5.58	-5.58
22	0.23	0.23
23	6.70	6.70
24	13.86	13.86
25	21.69	-23.85
26	-20.11	-15.13
27	-11.20	-6.29
28	-2.44	2.44
29	6.29	11.20
30	15.13	20.11
31	23.85	-21.70
32	-21.70	-16.51
33	-2.83	0.21
34	0.21	0.21
35	0.21	-0.65
36	5.09	17.61
37	25.71	-19.68
38	-12.95	-12.95
39	-6.48	-6.48
40	0.00	0.00
41	6.48	6.48
42	12.95	12.95
43	19.68	-25.63
44	-17.47	-4.98
45	-0.07	-0.07
46	-0.07	-0.07
47	-0.07	2.71
48	16.45	21.70
49	21.70	-24.32

	50	-20.55	-15.53
	51	-11.59	-6.67
	52	-2.82	2.04
	53	5.88	10.77
	54	14.67	19.64
	55	23.36	-21.69
	56	-13.86	-13.86
	57	-6.70	-6.70
	58	-0.23	-0.23
	59	5.58	5.58
	60	10.70	10.70
	61	15.15	-19.19
	62	-12.46	-12.46
	63	-5.98	-5.98
	64	0.49	0.49
	65	6.97	6.97
	66	13.45	13.45
	67	20.17	-25.72
	68	-17.61	-5.10
	69	0.64	-0.22
	70	-0.22	-0.22
	71	-0.22	2.82
	72	16.51	21.69

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmax                                  #
#####
```

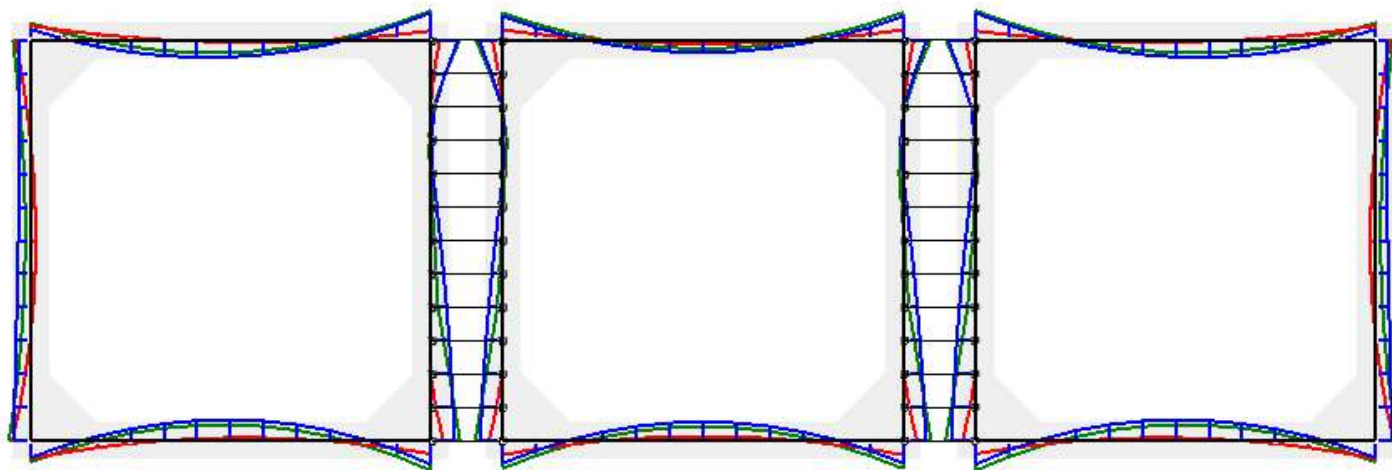
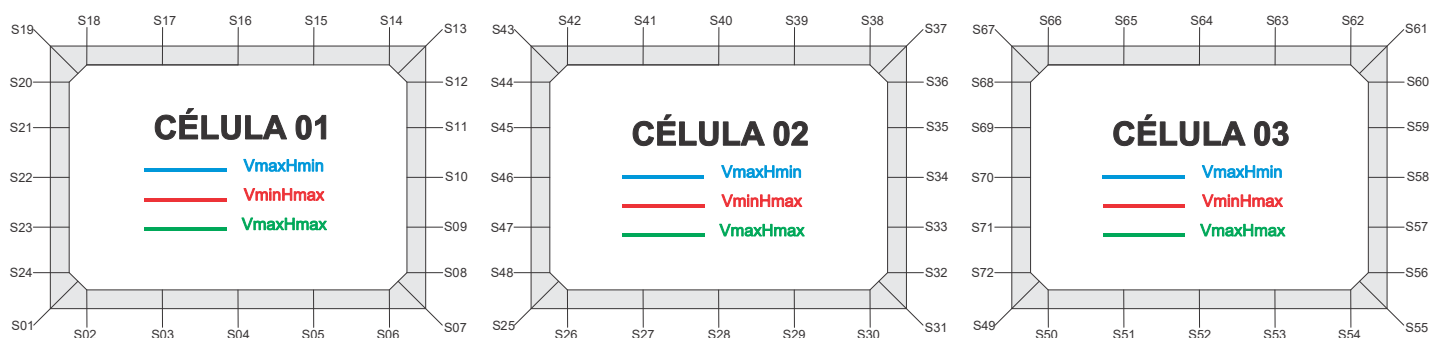
 ESFORÇOS CORTANTE NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN)	DIREITA (kN)
1	14.80	-29.21
2	-24.24	-18.05
3	-12.94	-6.84
4	-1.78	4.36
5	9.55	15.90
6	21.36	28.03
7	33.56	-14.80
8	-14.80	-14.80
9	-14.80	-3.83
10	-3.83	-3.83
11	-3.83	-3.83
12	11.19	27.53
13	34.05	-30.36
14	-20.85	-20.85
15	-11.60	-11.60
16	-2.34	-2.34
17	6.91	6.91
18	16.17	16.17
19	25.68	-9.76
20	-6.80	-6.80
21	-3.38	-3.38
22	0.49	0.49
23	4.81	4.81
24	9.58	9.58
25	14.80	-31.37
26	-26.16	-19.74
27	-14.45	-8.20
28	-3.04	3.14
29	8.30	14.54
30	19.84	26.25
31	31.46	-14.83
32	-14.83	-14.83
33	-14.83	-4.80
34	-4.80	-4.80
35	-4.80	2.40
36	10.09	26.41
37	33.55	-28.06
38	-18.55	-18.55
39	-9.30	-9.30
40	-0.04	-0.04
41	9.21	9.21
42	18.47	18.47
43	27.97	-34.01
44	-27.50	-11.15
45	3.87	3.87
46	3.87	3.87
47	3.87	14.83
48	14.83	14.83
49	14.83	-33.61

	50	-28.07	-21.42
	51	-15.95	-9.60
	52	-4.41	1.73
	53	6.79	12.90
	54	18.00	24.20
	55	29.17	-14.80
	56	-9.58	-9.58
	57	-4.81	-4.81
	58	-0.49	-0.49
	59	3.38	3.38
	60	6.80	6.80
	61	9.76	-25.63
	62	-16.13	-16.13
	63	-6.87	-6.87
	64	2.38	2.38
	65	11.64	11.64
	66	20.89	20.89
	67	30.40	-33.59
	68	-26.44	-10.13
	69	-2.44	4.77
	70	4.77	4.77
	71	4.77	14.80
	72	14.80	14.80

MOMENTO FLETOR

NOMENCLATURA DAS SEÇÕES PARA VERSÃO COMPLETA DO RELATÓRIO



```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VmaxHmin #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-9.99	9.99
2	-2.45	-2.45
3	-9.89	-9.89
4	-12.26	-12.26
5	-9.37	-9.37
6	-0.80	-0.80
7	14.01	14.01
8	12.38	12.38
9	9.62	9.62
10	5.95	5.95
11	1.60	1.60
12	2.56	2.56
13	16.16	-16.16
14	-2.81	-2.81
15	5.82	5.82
16	9.77	9.77
17	9.03	9.03
18	3.61	3.61
19	-6.54	-6.54
20	-6.39	-6.39
21	-6.66	-6.66
22	-7.24	-7.24
23	-8.05	-8.05
24	-9.00	-9.00
25	-9.99	13.32
26	-0.33	-0.33
27	-8.37	-8.37
28	-11.02	-11.02
29	-8.37	-8.37
30	-0.33	-0.33
31	13.32	13.32
32	11.45	11.45
33	8.45	8.45
34	4.54	4.54
35	-0.05	-0.05
36	0.66	0.66
37	14.02	-14.02
38	-2.27	-2.27
39	4.75	4.75
40	7.09	7.09
41	4.75	4.75
42	-2.27	-2.27
43	-14.02	-14.02
44	-0.66	-0.66
45	0.05	0.05
46	-4.54	-4.54
47	-8.45	-8.45
48	-11.45	-11.45
49	-13.32	14.01

	50	-0.80	-0.80
	51	-9.37	-9.37
	52	-12.26	-12.26
	53	-9.89	-9.89
	54	-2.45	-2.45
	55	9.99	9.99
	56	9.00	9.00
	57	8.05	8.05
	58	7.24	7.24
	59	6.66	6.66
	60	6.39	6.39
	61	6.54	-6.54
	62	3.61	3.61
	63	9.03	9.03
	64	9.77	9.77
	65	5.82	5.82
	66	-2.81	-2.81
	67	-16.16	-16.16
	68	-2.56	-2.56
	69	-1.60	-1.60
	70	-5.95	-5.95
	71	-9.62	-9.62
	72	-12.38	-12.38

```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VminHmax #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-10.73	10.73
2	4.16	4.16
3	0.02	0.02
4	-1.67	-1.67
5	-0.94	-0.94
6	2.21	2.21
7	7.77	7.77
8	0.25	0.25
9	-0.42	-0.42
10	-0.40	-0.40
11	-0.39	-0.39
12	0.04	0.04
13	5.57	-5.57
14	-1.59	-1.59
15	0.58	0.58
16	0.96	0.96
17	-0.44	-0.44
18	-3.62	-3.62
19	-8.61	-8.61
20	-2.28	-2.28
21	1.67	1.67
22	3.02	3.02
23	1.55	1.55
24	-2.96	-2.96
25	-10.73	8.36
26	2.31	2.31
27	-1.31	-1.31
28	-2.51	-2.51
29	-1.31	-1.31
30	2.31	2.31
31	8.36	8.36
32	0.83	0.83
33	0.17	0.17
34	0.23	0.23
35	0.29	0.29
36	0.61	0.61
37	6.18	-6.18
38	-1.70	-1.70
39	0.98	0.98
40	1.87	1.87
41	0.98	0.98
42	-1.70	-1.70
43	-6.18	-6.18
44	-0.65	-0.65
45	-0.22	-0.22
46	-0.20	-0.20
47	-0.18	-0.18
48	-0.84	-0.84
49	-8.36	7.77

	50	2.21	2.21
	51	-0.94	-0.94
	52	-1.67	-1.67
	53	0.02	0.02
	54	4.16	4.16
	55	10.73	10.73
	56	2.96	2.96
	57	-1.55	-1.55
	58	-3.02	-3.02
	59	-1.67	-1.67
	60	2.28	2.28
	61	8.61	-8.61
	62	-3.62	-3.62
	63	-0.44	-0.44
	64	0.96	0.96
	65	0.58	0.58
	66	-1.59	-1.59
	67	-5.57	-5.57
	68	0.00	0.00
	69	0.32	0.32
	70	0.37	0.37
	71	0.43	0.43
	72	-0.24	-0.24

```
#####
# SOLICITAÇÕES NORMAIS (ELU) #
# VmaxHmax #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-12.75	12.75
2	0.08	0.08
3	-7.27	-7.27
4	-9.32	-9.32
5	-6.02	-6.02
6	2.83	2.83
7	17.52	17.52
8	11.04	11.04
9	4.56	4.56
10	2.30	2.30
11	0.05	0.05
12	1.85	1.85
13	17.39	-17.39
14	-4.46	-4.46
15	3.74	3.74
16	7.25	7.25
17	6.08	6.08
18	0.23	0.23
19	-10.34	-10.34
20	-6.29	-6.29
21	-3.82	-3.82
22	-3.09	-3.09
23	-4.23	-4.23
24	-7.40	-7.40
25	-12.75	16.33
26	2.65	2.65
27	-5.46	-5.46
28	-8.12	-8.12
29	-5.40	-5.40
30	2.77	2.77
31	16.50	16.50
32	10.00	10.00
33	3.51	3.51
34	0.69	0.69
35	-2.13	-2.13
36	1.19	1.19
37	16.25	-16.25
38	-4.48	-4.48
39	2.57	2.57
40	4.94	4.94
41	2.62	2.62
42	-4.38	-4.38
43	-16.10	-16.10
44	-0.58	-0.58
45	1.20	1.20
46	-1.07	-1.07
47	-3.33	-3.33
48	-9.83	-9.83
49	-16.33	17.66

	50	2.95	2.95
	51	-5.94	-5.94
	52	-9.27	-9.27
	53	-7.25	-7.25
	54	0.07	0.07
	55	12.72	12.72
	56	7.37	7.37
	57	4.20	4.20
	58	3.05	3.05
	59	3.79	3.79
	60	6.26	6.26
	61	10.31	-10.31
	62	0.24	0.24
	63	6.07	6.07
	64	7.21	7.21
	65	3.67	3.67
	66	-4.55	-4.55
	67	-17.50	-17.50
	68	-2.43	-2.43
	69	0.91	0.91
	70	-1.89	-1.89
	71	-4.70	-4.70
	72	-11.18	-11.18

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmin                                #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-9.97	9.97
2	-2.94	-2.94
3	-10.85	-10.85
4	-13.73	-13.73
5	-11.39	-11.39
6	-3.38	-3.38
7	10.89	10.89
8	9.48	9.48
9	6.94	6.94
10	3.49	3.49
11	-0.64	-0.64
12	0.16	0.16
13	14.55	-14.55
14	-1.67	-1.67
15	6.47	6.47
16	9.93	9.93
17	8.71	8.71
18	2.81	2.81
19	-7.82	-7.82
20	-7.46	-7.46
21	-7.51	-7.51
22	-7.87	-7.87
23	-8.47	-8.47
24	-9.19	-9.19
25	-9.97	13.45
26	-0.64	-0.64
27	-9.13	-9.13
28	-12.25	-12.25
29	-10.10	-10.10
30	-2.58	-2.58
31	10.58	10.58
32	8.88	8.88
33	6.04	6.04
34	2.30	2.30
35	-2.12	-2.12
36	-0.35	-0.35
37	12.66	-12.66
38	-1.36	-1.36
39	5.22	5.22
40	7.11	7.11
41	4.32	4.32
42	-3.15	-3.15
43	-15.35	-15.35
44	-1.25	-1.25
45	-0.74	-0.74
46	-5.17	-5.17
47	-8.91	-8.91
48	-11.74	-11.74
49	-13.45	14.57

	50	-0.86	-0.86
	51	-10.00	-10.00
	52	-13.44	-13.44
	53	-11.66	-11.66
	54	-4.85	-4.85
	55	6.91	6.91
	56	5.94	5.94
	57	5.01	5.01
	58	4.21	4.21
	59	3.65	3.65
	60	3.40	3.40
	61	3.56	-3.56
	62	5.92	5.92
	63	10.68	10.68
	64	10.74	10.74
	65	6.13	6.13
	66	-3.16	-3.16
	67	-17.19	-17.19
	68	-4.08	-4.08
	69	-2.22	-2.22
	70	-6.56	-6.56
	71	-10.21	-10.21
	72	-12.95	-12.95

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VminHmax                                #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-10.74	10.74
2	4.17	4.17
3	0.01	0.01
4	-1.69	-1.69
5	-0.98	-0.98
6	2.16	2.16
7	7.71	7.71
8	0.21	0.21
9	-0.31	-0.31
10	-0.30	-0.30
11	-0.28	-0.28
12	-0.02	-0.02
13	5.54	-5.54
14	-1.57	-1.57
15	0.58	0.58
16	0.95	0.95
17	-0.46	-0.46
18	-3.65	-3.65
19	-8.66	-8.66
20	-2.32	-2.32
21	1.63	1.63
22	2.99	2.99
23	1.53	1.53
24	-2.98	-2.98
25	-10.74	8.35
26	2.26	2.26
27	-1.40	-1.40
28	-2.65	-2.65
29	-1.49	-1.49
30	2.07	2.07
31	8.07	8.07
32	0.56	0.56
33	0.04	0.04
34	0.10	0.10
35	0.17	0.17
36	0.32	0.32
37	5.93	-5.93
38	-1.49	-1.49
39	1.13	1.13
40	1.98	1.98
41	1.04	1.04
42	-1.68	-1.68
43	-6.22	-6.22
44	-0.65	-0.65
45	-0.39	-0.39
46	-0.36	-0.36
47	-0.34	-0.34
48	-0.85	-0.85
49	-8.35	7.62

	50	2.13	2.13
	51	-0.96	-0.96
	52	-1.63	-1.63
	53	0.14	0.14
	54	4.34	4.34
	55	10.98	10.98
	56	3.22	3.22
	57	-1.28	-1.28
	58	-2.74	-2.74
	59	-1.37	-1.37
	60	2.59	2.59
	61	8.93	-8.93
	62	-3.87	-3.87
	63	-0.62	-0.62
	64	0.85	0.85
	65	0.53	0.53
	66	-1.56	-1.56
	67	-5.47	-5.47
	68	0.14	0.14
	69	0.28	0.28
	70	0.35	0.35
	71	0.41	0.41
	72	-0.11	-0.11

```
#####
#          SOLICITAÇÕES TANGENCIAIS (ELU)          #
#          VmaxHmax                                #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-12.84	12.84
2	-0.23	-0.23
3	-8.00	-8.00
4	-10.50	-10.50
5	-7.69	-7.69
6	0.67	0.67
7	14.91	14.91
8	8.58	8.58
9	4.07	4.07
10	1.39	1.39
11	-1.29	-1.29
12	0.40	0.40
13	15.98	-15.98
14	-3.45	-3.45
15	4.34	4.34
16	7.46	7.46
17	5.89	5.89
18	-0.36	-0.36
19	-11.34	-11.34
20	-7.14	-7.14
21	-4.52	-4.52
22	-3.63	-3.63
23	-4.63	-4.63
24	-7.65	-7.65
25	-12.84	15.82
26	1.94	1.94
27	-6.37	-6.37
28	-9.25	-9.25
29	-6.78	-6.78
30	1.12	1.12
31	14.60	14.60
32	8.22	8.22
33	3.39	3.39
34	0.14	0.14
35	-3.12	-3.12
36	0.45	0.45
37	15.42	-15.42
38	-3.86	-3.86
39	2.98	2.98
40	5.13	5.13
41	2.60	2.60
42	-4.62	-4.62
43	-16.56	-16.56
44	-1.04	-1.04
45	0.60	0.60
46	-2.13	-2.13
47	-4.87	-4.87
48	-9.43	-9.43
49	-15.82	17.63

	50	2.60	2.60
	51	-6.55	-6.55
	52	-10.13	-10.13
	53	-8.39	-8.39
	54	-1.38	-1.38
	55	10.91	10.91
	56	5.56	5.56
	57	2.38	2.38
	58	1.22	1.22
	59	1.95	1.95
	60	4.41	4.41
	61	8.46	-8.46
	62	1.73	1.73
	63	7.19	7.19
	64	7.97	7.97
	65	4.07	4.07
	66	-4.51	-4.51
	67	-17.83	-17.83
	68	-2.96	-2.96
	69	0.50	0.50
	70	-2.86	-2.86
	71	-6.21	-6.21
	72	-11.14	-11.14

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VmaxHmin                             #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-7.82	7.82
2	-0.49	-0.49
3	-5.31	-5.31
4	-6.66	-6.66
5	-4.50	-4.50
6	1.36	1.36
7	11.12	11.12
8	7.66	7.66
9	4.21	4.21
10	2.11	2.11
11	0.01	0.01
12	1.11	1.11
13	11.06	-11.06
14	-2.66	-2.66
15	2.71	2.71
16	5.07	5.07
17	4.43	4.43
18	0.79	0.79
19	-5.89	-5.89
20	-4.17	-4.17
21	-3.09	-3.09
22	-2.77	-2.77
23	-3.37	-3.37
24	-5.00	-5.00
25	-7.82	10.27
26	1.25	1.25
27	-4.09	-4.09
28	-5.83	-5.83
29	-4.03	-4.03
30	1.36	1.36
31	10.44	10.44
32	6.97	6.97
33	3.50	3.50
34	0.85	0.85
35	-1.79	-1.79
36	0.76	0.76
37	10.26	-10.26
38	-2.69	-2.69
39	1.84	1.84
40	3.37	3.37
41	1.89	1.89
42	-2.59	-2.59
43	-10.11	-10.11
44	-0.18	-0.18
45	0.90	0.90
46	-1.22	-1.22
47	-3.33	-3.33
48	-6.80	-6.80
49	-10.27	11.25

	50	1.47	1.47
	51	-4.42	-4.42
	52	-6.62	-6.62
	53	-5.29	-5.29
	54	-0.49	-0.49
	55	7.79	7.79
	56	4.97	4.97
	57	3.34	3.34
	58	2.74	2.74
	59	3.06	3.06
	60	4.14	4.14
	61	5.86	-5.86
	62	0.80	0.80
	63	4.42	4.42
	64	5.03	5.03
	65	2.64	2.64
	66	-2.75	-2.75
	67	-11.18	-11.18
	68	-1.66	-1.66
	69	0.91	0.91
	70	-1.72	-1.72
	71	-4.34	-4.34
	72	-7.80	-7.80

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmax                             #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-8.32	8.32
2	2.31	2.31
3	-1.30	-1.30
4	-2.48	-2.48
5	-1.26	-1.26
6	2.38	2.38
7	8.45	8.45
8	1.93	1.93
9	-0.11	-0.11
10	-0.10	-0.10
11	-0.08	-0.08
12	0.57	0.57
13	6.45	-6.45
14	-1.93	-1.93
15	0.77	0.77
16	1.69	1.69
17	0.83	0.83
18	-1.81	-1.81
19	-6.27	-6.27
20	-2.19	-2.19
21	0.35	0.35
22	1.19	1.19
23	0.14	0.14
24	-2.98	-2.98
25	-8.32	8.43
26	2.38	2.38
27	-1.24	-1.24
28	-2.44	-2.44
29	-1.24	-1.24
30	2.38	2.38
31	8.43	8.43
32	1.90	1.90
33	-0.16	-0.16
34	-0.11	-0.11
35	-0.06	-0.06
36	0.50	0.50
37	6.41	-6.41
38	-1.93	-1.93
39	0.75	0.75
40	1.64	1.64
41	0.75	0.75
42	-1.93	-1.93
43	-6.41	-6.41
44	-0.53	-0.53
45	0.12	0.12
46	0.13	0.13
47	0.14	0.14
48	-1.90	-1.90
49	-8.43	8.45

	50	2.38	2.38
	51	-1.26	-1.26
	52	-2.48	-2.48
	53	-1.30	-1.30
	54	2.31	2.31
	55	8.32	8.32
	56	2.98	2.98
	57	-0.14	-0.14
	58	-1.19	-1.19
	59	-0.35	-0.35
	60	2.19	2.19
	61	6.27	-6.27
	62	-1.81	-1.81
	63	0.83	0.83
	64	1.69	1.69
	65	0.77	0.77
	66	-1.93	-1.93
	67	-6.45	-6.45
	68	-0.54	-0.54
	69	0.03	0.03
	70	0.08	0.08
	71	0.14	0.14
	72	-1.93	-1.93

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VmaxHmax                             #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-8.54	8.54
2	0.15	0.15
3	-4.72	-4.72
4	-6.07	-6.07
5	-3.89	-3.89
6	1.96	1.96
7	11.66	11.66
8	7.22	7.22
9	2.79	2.79
10	1.42	1.42
11	0.04	0.04
12	1.21	1.21
13	11.19	-11.19
14	-2.89	-2.89
15	2.37	2.37
16	4.63	4.63
17	3.89	3.89
18	0.14	0.14
19	-6.65	-6.65
20	-4.01	-4.01
21	-2.40	-2.40
22	-1.94	-1.94
23	-2.72	-2.72
24	-4.89	-4.89
25	-8.54	10.89
26	1.85	1.85
27	-3.52	-3.52
28	-5.28	-5.28
29	-3.49	-3.49
30	1.92	1.92
31	10.99	10.99
32	6.55	6.55
33	2.10	2.10
34	0.38	0.38
35	-1.33	-1.33
36	0.76	0.76
37	10.45	-10.45
38	-2.89	-2.89
39	1.63	1.63
40	3.15	3.15
41	1.66	1.66
42	-2.83	-2.83
43	-10.36	-10.36
44	-0.39	-0.39
45	0.77	0.77
46	-0.61	-0.61
47	-2.00	-2.00
48	-6.44	-6.44
49	-10.89	11.74

	50	2.03	2.03
	51	-3.84	-3.84
	52	-6.04	-6.04
	53	-4.70	-4.70
	54	0.14	0.14
	55	8.52	8.52
	56	4.87	4.87
	57	2.70	2.70
	58	1.92	1.92
	59	2.38	2.38
	60	3.99	3.99
	61	6.63	-6.63
	62	0.15	0.15
	63	3.88	3.88
	64	4.61	4.61
	65	2.33	2.33
	66	-2.95	-2.95
	67	-11.26	-11.26
	68	-1.56	-1.56
	69	0.54	0.54
	70	-1.16	-1.16
	71	-2.87	-2.87
	72	-7.31	-7.31

```
#####
#          VERIFICAÇÃO DA FADIGA (ELS)          #
#          VminHmin                             #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-6.01	6.01
2	0.40	0.40
3	-2.86	-2.86
4	-3.76	-3.76
5	-2.29	-2.29
6	1.61	1.61
7	8.03	8.03
8	4.57	4.57
9	1.11	1.11
10	0.59	0.59
11	0.06	0.06
12	0.81	0.81
13	6.76	-6.76
14	-1.82	-1.82
15	1.31	1.31
16	2.65	2.65
17	2.21	2.21
18	0.00	0.00
19	-4.04	-4.04
20	-2.33	-2.33
21	-1.25	-1.25
22	-0.94	-0.94
23	-1.54	-1.54
24	-3.19	-3.19
25	-6.01	7.56
26	1.54	1.54
27	-2.05	-2.05
28	-3.23	-3.23
29	-2.04	-2.04
30	1.57	1.57
31	7.60	7.60
32	4.13	4.13
33	0.67	0.67
34	0.01	0.01
35	-0.65	-0.65
36	0.44	0.44
37	6.29	-6.29
38	-1.79	-1.79
39	0.88	0.88
40	1.78	1.78
41	0.90	0.90
42	-1.77	-1.77
43	-6.25	-6.25
44	-0.31	-0.31
45	0.43	0.43
46	-0.10	-0.10
47	-0.63	-0.63
48	-4.10	-4.10
49	-7.56	8.06

	50	1.64	1.64
	51	-2.27	-2.27
	52	-3.75	-3.75
	53	-2.85	-2.85
	54	0.40	0.40
	55	6.01	6.01
	56	3.18	3.18
	57	1.54	1.54
	58	0.93	0.93
	59	1.24	1.24
	60	2.32	2.32
	61	4.03	-4.03
	62	0.00	0.00
	63	2.21	2.21
	64	2.64	2.64
	65	1.29	1.29
	66	-1.84	-1.84
	67	-6.79	-6.79
	68	-0.94	-0.94
	69	0.16	0.16
	70	-0.49	-0.49
	71	-1.14	-1.14
	72	-4.60	-4.60

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmin                                  #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-7.14	7.14
2	-0.16	-0.16
3	-4.39	-4.39
4	-5.57	-5.57
5	-3.67	-3.67
6	1.46	1.46
7	9.96	9.96
8	6.50	6.50
9	3.05	3.05
10	1.54	1.54
11	0.03	0.03
12	1.00	1.00
13	9.45	-9.45
14	-2.34	-2.34
15	2.18	2.18
16	4.16	4.16
17	3.60	3.60
18	0.49	0.49
19	-5.20	-5.20
20	-3.48	-3.48
21	-2.40	-2.40
22	-2.09	-2.09
23	-2.68	-2.68
24	-4.32	-4.32
25	-7.14	9.26
26	1.36	1.36
27	-3.32	-3.32
28	-4.86	-4.86
29	-3.28	-3.28
30	1.44	1.44
31	9.37	9.37
32	5.90	5.90
33	2.44	2.44
34	0.54	0.54
35	-1.36	-1.36
36	0.64	0.64
37	8.77	-8.77
38	-2.35	-2.35
39	1.48	1.48
40	2.77	2.77
41	1.52	1.52
42	-2.29	-2.29
43	-8.67	-8.67
44	-0.23	-0.23
45	0.73	0.73
46	-0.80	-0.80
47	-2.32	-2.32
48	-5.79	-5.79
49	-9.26	10.05

	50	1.53	1.53
	51	-3.61	-3.61
	52	-5.54	-5.54
	53	-4.38	-4.38
	54	-0.16	-0.16
	55	7.12	7.12
	56	4.30	4.30
	57	2.66	2.66
	58	2.06	2.06
	59	2.38	2.38
	60	3.46	3.46
	61	5.18	-5.18
	62	0.50	0.50
	63	3.59	3.59
	64	4.14	4.14
	65	2.14	2.14
	66	-2.41	-2.41
	67	-9.53	-9.53
	68	-1.39	-1.39
	69	0.62	0.62
	70	-1.26	-1.26
	71	-3.14	-3.14
	72	-6.60	-6.60

```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VminHmax                                  #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-7.83	7.83
2	1.92	1.92
3	-1.58	-1.58
4	-2.67	-2.67
5	-1.37	-1.37
6	2.36	2.36
7	8.53	8.53
8	2.57	2.57
9	-0.07	-0.07
10	-0.04	-0.04
11	-0.02	-0.02
12	0.67	0.67
13	6.60	-6.60
14	-1.98	-1.98
15	0.83	0.83
16	1.86	1.86
17	1.10	1.10
18	-1.44	-1.44
19	-5.79	-5.79
20	-2.22	-2.22
21	0.04	0.04
22	0.79	0.79
23	-0.15	-0.15
24	-2.96	-2.96
25	-7.83	8.38
26	2.34	2.34
27	-1.28	-1.28
28	-2.48	-2.48
29	-1.28	-1.28
30	2.34	2.34
31	8.38	8.38
32	2.42	2.42
33	-0.24	-0.24
34	-0.18	-0.18
35	-0.12	-0.12
36	0.49	0.49
37	6.44	-6.44
38	-1.96	-1.96
39	0.72	0.72
40	1.61	1.61
41	0.72	0.72
42	-1.96	-1.96
43	-6.44	-6.44
44	-0.52	-0.52
45	0.18	0.18
46	0.20	0.20
47	0.22	0.22
48	-2.42	-2.42
49	-8.38	8.53

	50	2.36	2.36
	51	-1.37	-1.37
	52	-2.67	-2.67
	53	-1.58	-1.58
	54	1.92	1.92
	55	7.83	7.83
	56	2.96	2.96
	57	0.15	0.15
	58	-0.79	-0.79
	59	-0.04	-0.04
	60	2.22	2.22
	61	5.79	-5.79
	62	-1.44	-1.44
	63	1.10	1.10
	64	1.86	1.86
	65	0.83	0.83
	66	-1.98	-1.98
	67	-6.60	-6.60
	68	-0.64	-0.64
	69	-0.03	-0.03
	70	0.03	0.03
	71	0.09	0.09
	72	-2.57	-2.57

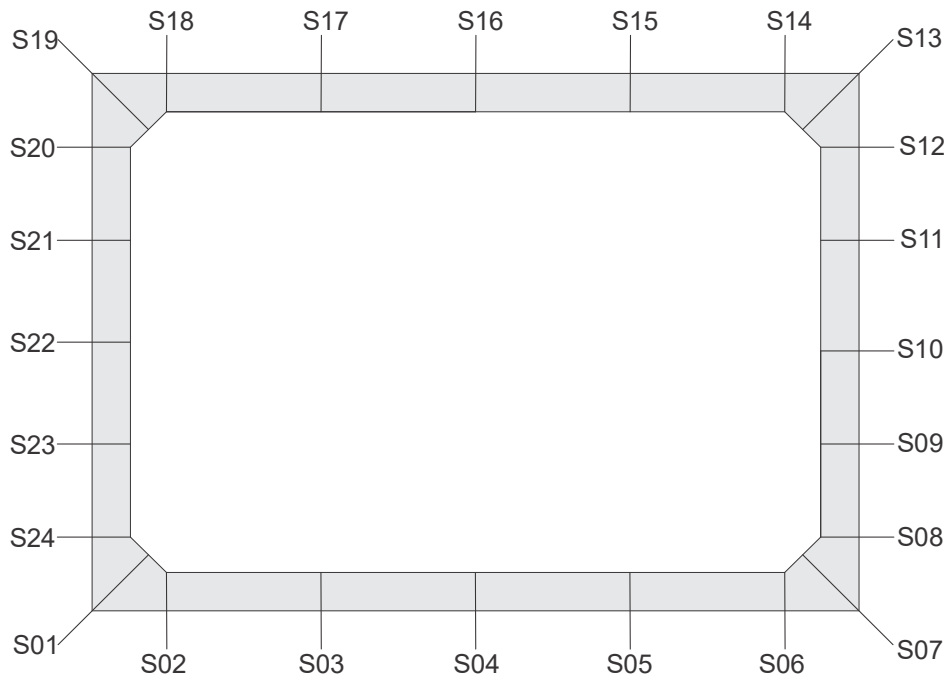
```
#####
#          VERIFICAÇÃO DA FISSURAÇÃO (ELS)          #
#          VmaxHmax                                  #
#####
```

MOMENTO FLETOR NAS SEÇÕES DE INTERESSE

SEÇÃO	ESQUERDA (kN.m)	DIREITA (kN.m)
1	-7.59	7.59
2	0.24	0.24
3	-4.02	-4.02
4	-5.21	-5.21
5	-3.29	-3.29
6	1.83	1.83
7	10.30	10.30
8	6.23	6.23
9	2.16	2.16
10	1.10	1.10
11	0.05	0.05
12	1.06	1.06
13	9.53	-9.53
14	-2.49	-2.49
15	1.97	1.97
16	3.89	3.89
17	3.26	3.26
18	0.09	0.09
19	-5.67	-5.67
20	-3.38	-3.38
21	-1.97	-1.97
22	-1.56	-1.56
23	-2.28	-2.28
24	-4.25	-4.25
25	-7.59	9.64
26	1.73	1.73
27	-2.97	-2.97
28	-4.51	-4.51
29	-2.94	-2.94
30	1.79	1.79
31	9.72	9.72
32	5.64	5.64
33	1.56	1.56
34	0.24	0.24
35	-1.08	-1.08
36	0.64	0.64
37	8.89	-8.89
38	-2.48	-2.48
39	1.35	1.35
40	2.64	2.64
41	1.37	1.37
42	-2.43	-2.43
43	-8.82	-8.82
44	-0.36	-0.36
45	0.64	0.64
46	-0.42	-0.42
47	-1.48	-1.48
48	-5.56	-5.56
49	-9.64	10.36

	50	1.88	1.88
	51	-3.25	-3.25
	52	-5.18	-5.18
	53	-4.01	-4.01
	54	0.24	0.24
	55	7.58	7.58
	56	4.23	4.23
	57	2.27	2.27
	58	1.55	1.55
	59	1.96	1.96
	60	3.36	3.36
	61	5.65	-5.65
	62	0.09	0.09
	63	3.25	3.25
	64	3.87	3.87
	65	1.94	1.94
	66	-2.53	-2.53
	67	-9.58	-9.58
	68	-1.33	-1.33
	69	0.40	0.40
	70	-0.91	-0.91
	71	-2.22	-2.22
	72	-6.29	-6.29

ARMADURAS P/ SOLICITAÇÕES NORMAIS



Seção	As-CA60ext(cm ² /m)	As-CA50ext(cm ² /m)	As-CA60int(cm ² /m)	As-CA50int(cm ² /m)
1	5.47	6.57	1.26	1.26
2	2.32	2.79	2.32	2.79
3	2.32	2.79	2.32	2.79
4	2.32	2.79	2.32	2.79
5	2.32	2.79	2.32	2.79
6	2.32	2.79	2.32	2.79
7	5.47	6.57	1.26	1.26
8	2.32	2.79	2.32	2.79
9	2.32	2.79	2.32	2.79
10	2.32	2.79	2.32	2.79
11	2.32	2.79	2.32	2.79
12	2.32	2.79	2.32	2.79
13	5.47	6.57	1.26	1.26
14	2.32	2.79	2.32	2.79
15	2.32	2.79	2.32	2.79
16	2.32	2.79	2.32	2.79
17	2.32	2.79	2.32	2.79
18	2.32	2.79	2.32	2.79
19	5.47	6.57	1.26	1.26
20	2.32	2.79	2.32	2.79
21	2.32	2.79	2.32	2.79
22	2.32	2.79	2.32	2.79
23	2.32	2.79	2.32	2.79
24	2.32	2.79	2.32	2.79

NOTA: A tabela acima mostra as áreas de aço calculadas para parte interna e externa das seções de interesse. Estas áreas são mostradas para o caso de se utilizar apenas aço do tipo CA60 (As-CA60ext e As-CA60int) e os correspondentes valores para o caso de se utilizar apenas aço do tipo CA50 (As-CA50ext e As-CA50int). Possibilitando os cálculos para o uso combinado dos tipos de aço: CA60 contido nas telas soldadas e o CA50 presentes nas barras.

VERIFICAÇÃO DA FADIGA

Seção	Nsdmax(kN)	Msdmax(kN.m)	Nsdmin(kN)	Msdmin(kN.m)	DSs(MPa)	Asad(cm ² /m)
12	-37.05	1.21	-22.61	0.81	-1.44	0.00
13	-35.77	11.19	-7.22	6.76	11.22	0.00
14	-11.29	2.89	-7.22	1.82	14.30	0.00
16	-7.25	5.07	-17.41	1.69	135.38	0.00
18	-11.29	0.14	-7.22	0.00	3.40	0.00
19	-30.26	6.65	-7.22	4.04	3.28	0.00
20	-31.54	4.01	-19.31	2.33	19.44	0.00

VERIFICAÇÃO DA CORTANTE

Seção	fck(MPa)	fcd(MPa)	fctm(MPa)	fctk,inf(MPa)	fctd(MPa)	Trd(MPa)
1	30.00	23.08	2.90	2.03	1.56	0.39
2	30.00	23.08	2.90	2.03	1.56	0.39
6	30.00	23.08	2.90	2.03	1.56	0.39
7	30.00	23.08	2.90	2.03	1.56	0.39
13	30.00	23.08	2.90	2.03	1.56	0.39
14	30.00	23.08	2.90	2.03	1.56	0.39
18	30.00	23.08	2.90	2.03	1.56	0.39
19	30.00	23.08	2.90	2.03	1.56	0.39

Seção	As(cm ² /m)	ro	vsd(kN)	vrd1(kN)	vrd2(kN)	Asw(cm ² /m/m)
1	6.57	2.12E-003	45.12	195.75	0.00	0.00
2	2.79	2.53E-003	40.69	79.37	0.00	0.00
6	2.79	2.53E-003	43.75	79.37	0.00	0.00
7	6.57	2.12E-003	49.13	191.80	0.00	0.00
13	6.57	2.12E-003	44.05	192.95	0.00	0.00
14	2.79	2.53E-003	30.89	80.18	0.00	0.00
18	2.79	2.53E-003	26.47	80.18	0.00	0.00
19	6.57	2.12E-003	35.15	193.87	0.00	0.00

OBSERVAÇÃO: A verificação da resistência à força cortante é feita a uma distância $d/2$ das seções das mísulas.

VERIFICAÇÃO DA FISSURAÇÃO

VmaxHmin

Seção	As (cm ² /m)	Nsd (kN)	Msd (kN.m)	Ø (mm)	w (mm)
1	6.57	-11.55	7.14	6.30	0.001
2	2.79	-12.56	0.16	6.30	0.000
3	2.79	-12.56	4.39	6.30	0.023
4	2.79	-12.56	5.57	6.30	0.038
5	2.79	-12.56	3.67	6.30	0.015
6	2.79	-12.56	1.46	6.30	0.002
7	6.57	-24.92	9.96	6.30	0.002
8	2.79	-36.00	6.50	6.30	0.040
9	2.79	-34.97	3.05	6.30	0.005
10	2.79	-33.94	1.54	6.30	0.000
11	2.79	-32.90	0.03	6.30	0.000
12	2.79	-31.87	1.00	6.30	0.000
13	6.57	-18.91	9.45	6.30	0.002
14	2.79	-7.24	2.34	6.30	0.006
15	2.79	-7.24	2.18	6.30	0.005
16	2.79	-7.24	4.16	6.30	0.022
17	2.79	-7.24	3.60	6.30	0.016
18	2.79	-7.24	0.49	6.30	0.000
19	6.57	-16.34	5.20	6.30	0.001
20	2.79	-26.72	3.48	6.30	0.009
21	2.79	-27.75	2.40	6.30	0.003
22	2.79	-28.78	2.09	6.30	0.002
23	2.79	-29.81	2.68	6.30	0.004
24	2.79	-30.85	4.32	6.30	0.015

VminHmax

Seção	As (cm ² /m)	Nsd (kN)	Msd (kN.m)	Ø (mm)	w (mm)
1	6.57	-10.41	7.83	6.30	0.002
2	2.79	-21.69	1.92	6.30	0.002
3	2.79	-21.69	1.58	6.30	0.001
4	2.79	-21.69	2.67	6.30	0.005
5	2.79	-21.69	1.37	6.30	0.001
6	2.79	-21.69	2.36	6.30	0.004
7	6.57	-24.27	8.53	6.30	0.002
8	2.79	-25.58	2.57	6.30	0.004
9	2.79	-24.55	0.07	6.30	0.000
10	2.79	-23.52	0.04	6.30	0.000
11	2.79	-22.48	0.02	6.30	0.000
12	2.79	-21.45	0.67	6.30	0.000
13	6.57	-17.66	6.60	6.30	0.001
14	2.79	-15.15	1.98	6.30	0.003
15	2.79	-15.15	0.83	6.30	0.000
16	2.79	-15.15	1.86	6.30	0.003
17	2.79	-15.15	1.10	6.30	0.000
18	2.79	-15.15	1.44	6.30	0.001
19	6.57	-17.17	5.79	6.30	0.001
20	2.79	-20.47	2.22	6.30	0.003
21	2.79	-21.50	0.04	6.30	0.000
22	2.79	-22.53	0.79	6.30	0.000
23	2.79	-23.56	0.15	6.30	0.000
24	2.79	-24.59	2.96	6.30	0.006

VERIFICAÇÃO DA FISSURAÇÃO (CONT.)

VmaxHmax

Seção	As(cm ² /m)	Nsd(kN)	Msd(kN.m)	Ø(mm)	w(mm)
1	6.57	-11.00	7.59	6.30	0.002
2	2.79	-14.80	0.24	6.30	0.000
3	2.79	-14.80	4.02	6.30	0.018
4	2.79	-14.80	5.21	6.30	0.032
5	2.79	-14.80	3.29	6.30	0.011
6	2.79	-14.80	1.83	6.30	0.003
7	6.57	-25.92	10.30	6.30	0.003
8	2.79	-35.76	6.23	6.30	0.036
9	2.79	-34.73	2.16	6.30	0.001
10	2.79	-33.70	1.10	6.30	0.000
11	2.79	-32.67	0.05	6.30	0.000
12	2.79	-31.64	1.06	6.30	0.000
13	6.57	-20.06	9.53	6.30	0.002
14	2.79	-9.76	2.49	6.30	0.007
15	2.79	-9.76	1.97	6.30	0.004
16	2.79	-9.76	3.89	6.30	0.018
17	2.79	-9.76	3.26	6.30	0.012
18	2.79	-9.76	0.09	6.30	0.000
19	6.57	-17.72	5.67	6.30	0.001
20	2.79	-26.96	3.38	6.30	0.009
21	2.79	-27.99	1.97	6.30	0.001
22	2.79	-29.02	1.56	6.30	0.000
23	2.79	-30.05	2.28	6.30	0.002
24	2.79	-31.08	4.25	6.30	0.015

NOTA:

* Seção com aumento na armadura devido à fissuração.